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RAILWAY AND COMMERCIAL GAZETTE.

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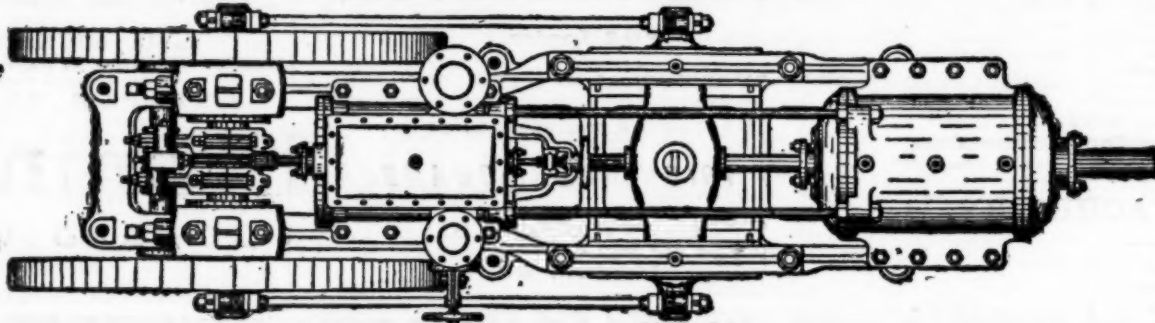
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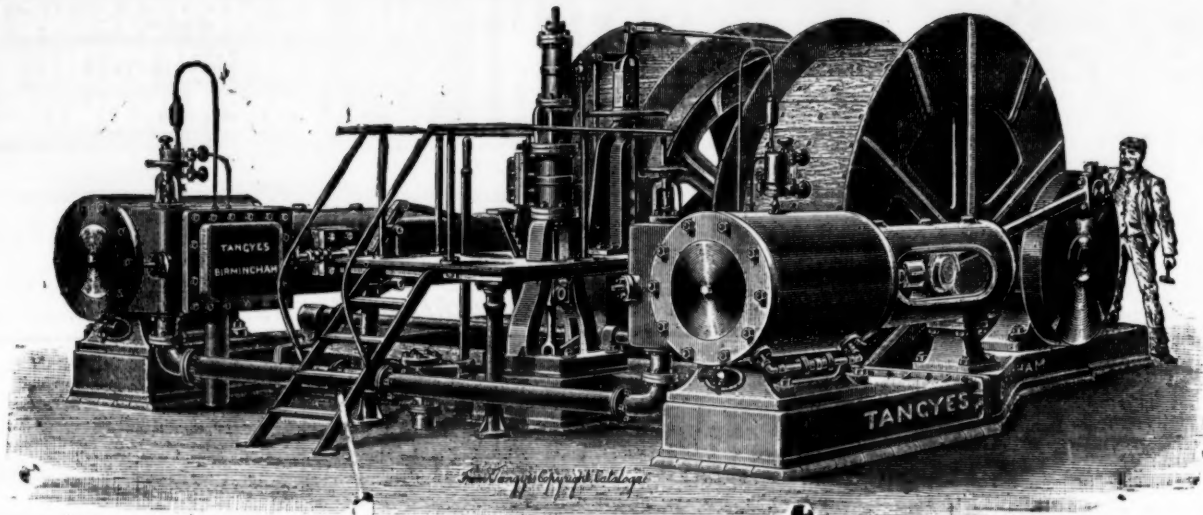
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From a Drawing of a Pair of Coupled Winding Engines, having Cylinders 18 inches diameter by 36 inches stroke, and fitted with Steam Reversing Gear. Drums 8 feet diameter—one being loose on shaft and fitted with clutch. The whole is carried on a strong Cast Iron Base Plate, in the centre of which is a Wrought Iron Platform for Engineman, the necessary Levers for working the Engines being placed in convenient positions upon the same.

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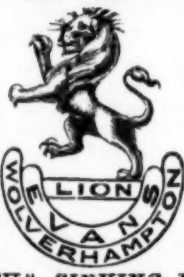
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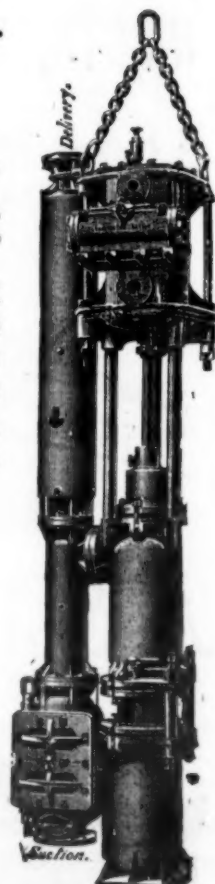
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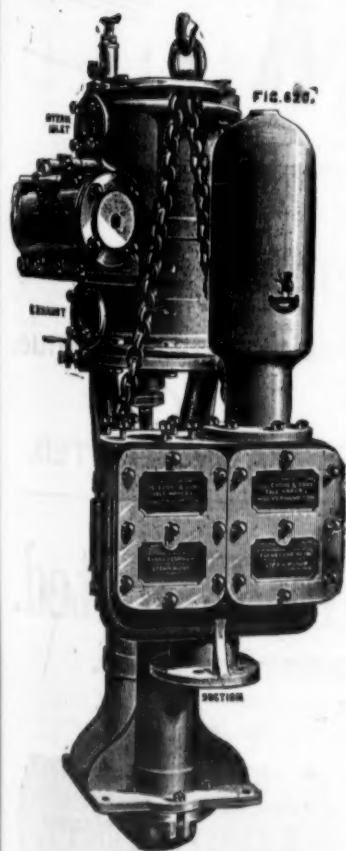


FIG. 875, "FLUOMETER"
PATENT STEAM VACUUM
PUMP.

The "CORNISH" STEAM PUMP.
The "DUPLEX" STEAM PUMP.
The "RAM" STEAM PUMP.
The "RELIABLE" STEAM PUMP.
DONKEY PUMPS.
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"STRAIGHT-LINE"
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SINKING PUMP



GRIF" PATTERN
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 Applicable to all enclosed fans

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ESTIMATES AND FULL PARTICULARS ON APPLICATION.

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SILVER MEDALS AWARDED AT THE ROYAL CORNWALL POLYTECHNIC, 1873 & 1876; GOLD MEDAL AWARDED AT THE GREAT INTERNATIONAL MINING EXHIBITION, CRYSTAL PALACE 1890.

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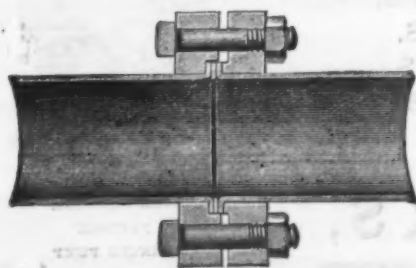
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WROUGHT IRON WELDED TUBES and FITTINGS for GAS, WATER, and STEAM.
 Light Lap-welded Wrought-iron and Steel Tubes
 (SPECIALLY ADAPTED FOR MINES).

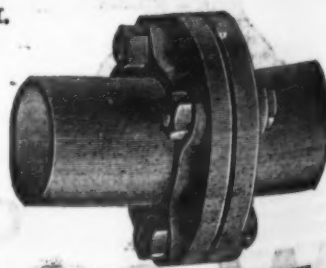
With Patent Flanged Joints (as illustrated) for the Conveyance of Water, Steam, and Air, at High and Low Pressures.

LAP-WELDED IRON AND STEEL BOILER TUBES
 FOR LOCOMOTIVE, MARINE, AND OTHER MULTITUBULAR BOILERS.

STEEL & IRON PLATES FOR BOILERS, BRIDGES, &c.



SECTION OF PATENT FLANGED JOINT



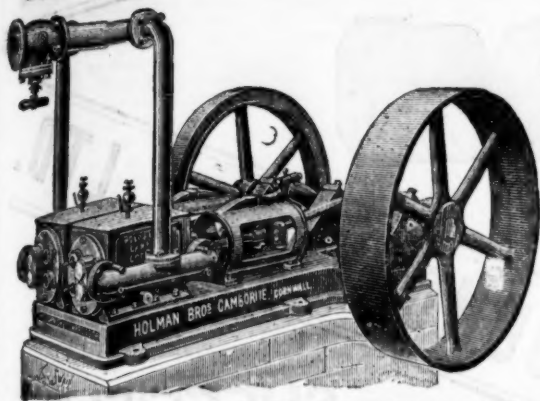
PLAN OF PATENT FLANGED JOINT

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ESTABLISHED 1839.

Patentees and Sole Makers of
"THE CORNISH" ROCK DRILL and "THE CORNISH" COMPRESSOR.



FIRST
SILVER MEDAL,
Highest Award,
Mining Institute
Contest, 1881.

Three Makers
represented.



FIRST
SILVER MEDAL
Highest Award,
Royal Cornwall
Polytechnic
Jubilee Exhibition
Contest, 1882.

Five Makers
represented.

AWARDED SILVER MEDAL INTERNATIONAL
INVENTIONS EXHIBITION, 1885.

RECORD OF WORK DONE

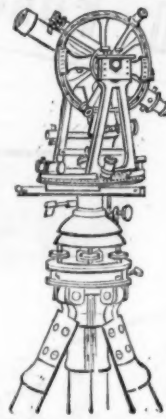
At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** drove, sunk, and rose **288 FATHOMS** in **12 MONTHS**, equal to five times the Speed of Hand Labour
At Wheal Grenville Mine, Camborne, Cornwall, **SIX MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** started from the **150 FATHOMS** level and put up in **EIGHT MONTHS** a **11 FEET** by **5 FEET PERPENDICULAR RISE 46 FATHOMS 5 FEET 6 INCHES**, and about midway drove **1 FATHOM 5 FT.** No communication of any kind was effected until holing to the Shaft brought down from surface.

Estimates for **ROCK BORING PLANT** and **GENERAL MINING MACHINERY** on Application.

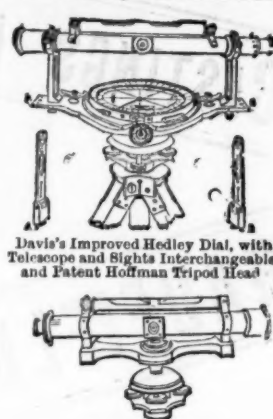
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Dumpy Level with
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MINING, SURVEYING, AND
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THEODOLITES. LEVELS. TACHEOMETERS.

Davis's Improved Hedley Miners' Dials, with
HOFFMAN PATENT TRIPOD HEAD;
AND ALL DESCRIPTIONS OF MATHEMATICAL AND
MINING SURVEYING INSTRUMENTS.

Revised Illustrated Catalogues Free to any Part the World.

SECTION (A) MATHEMATICAL DEPARTMENT AND SAFETY LAMPS
SECTION (B) ELECTRICAL DEPARTMENT.

Gold Medal Awarded Mining Exhibition, 1890.
A. B. C. CABLE CODE, 4TH EDITION.

Jeffrey Electric Coal Cutter and Drill may be seen at work in the
Model Mine, Cardiff Exhibition, Instruments, &c., Stand No. 315.

AWARDS: CRYSTAL PALACE, 1890; TASMANIA, 1891; KIMBERLEY, 1892.

CONCENTRATION.

The Clarkson-Stanfield Ore Reduction Co. (Limited).

In the CLARKSON-STANFIELD process of Concentrating Refractory and Complex Ores no water is required; dust is reduced to a minimum; the loss of Mineral through water-borne Slimes is obviated.

OUTPUT $\frac{1}{2}$ TO 2 TONS PER HOUR, ACCORDING TO SIZE OF MACHINE.

CONCENTRATOR TO BE SEEN IN OPERATION AT THE COMPANY'S ONLY ADDRESS.

6, COLONIAL AVENUE, MINORIES, LONDON, E.

The Machine is superior to Sieves for Sizing Homogeneous Substances, such as Emery, Sand, and Powders, and may be used to great advantage in the preparation of Ochre.

N.B.—The owners of the Carnadochan Mine, near Bala, North Wales, will, by arrangement, show their CLARKSON-STANFIELD plant working on a Refractory Low Grade Gold Ore.

NEW PATENTS.

LIST of APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs. Rayner and Company, Patent Agents, 31, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

- 2282 Alfred George Melhuish, 203, Choumert Road, Peckham, London.—Improvements in and connected with internal combustion engines.—September 14.
- 2283 Alfred George Melhuish, 203, Choumert Road, Peckham, London.—Improvements in internal combustion engines.—September 14.
- 2284 Samuel Richard, 101, Colmore Row, Birmingham.—Certain improvements in connection with steam boilers and other furnaces for preventing the smoke arising from same.—September 14.
- 2285 Isaac Pearson, 18, St. Anne's Street, Manchester.—Improvements in apparatus for use in supplying air, the furnaces of steam boilers, and other similar furnaces.—September 28.
- 2286 John Fullman, 65, Chancery Lane, London.—Improvements in the treatment of sulphide ores.—September 28.
- 2287 William Richard Wynn, 45, Palace Mansions, Addison Bridge, London.—An improvement in mineral oil lamps.—September 28.
- 2288 Joseph Charles William Lloyd, 55, Chancery Lane, London.—Improvements in water tube boilers.—September 29.
- 2289 Samuel Curtis, 78, Eldersfield Road, Clapton, London.—Improvements in the extraction of gold from ores or other substances containing same.
- 2290 Josef Symonath, 13, Buckingham Street, Strand, London.—Improvements in and relating to miners' safety lamps.—October 2.
- 2291 Wyndham and Hallett.—Check valves for steam boilers, 1895.
- 2292 Thomas.—Rotary rock drills, 1895.
- 2293 Dehuany-Bellville.—Steam generators and feed-water heaters therefor, 1895.
- 2294 Tavor.—Valve gear for steam engines, 1895.

JOINT-STOCK COMPANIES.

NEW REGISTRATIONS.

THE following are among the joint-stock companies registered at Somerset House since our last notice:—

Transport, Trading, and Agency Company of West Australia (Limited).—Registered October 7 by Chester and Sons, 1, Gt. W. Chester Street, E.C. Capital £100,000 in £1 shares, 99,900 ordinary and 100 deferred, to seek for and obtain openings for the employment of capital in any part of the world, and with a view thereto to prospect, examine, explore, develop, and work any mining, landed, agricultural or other properties, and to despatch and employ expeditions, agents and others; to carry on business as general carriers, forwarding agents and common carriers; as provision dealers, licensed victuallers, refreshment contractors and dealers in mineral, sprated and other liquors; to acquire any mines, mining, water and other rights, and property supposed to contain minerals and precious stones of all kinds, and to carry on the general business of a mining, milling, smelting and metallurgical company.

Colonial Mutual Explorers (Limited).—Registered October 6 by Maddison, 1, King's Arms Yard, E.C. Capital £50,000, in £1 shares. Objects: To acquire any mines, mining, water and other rights in Australia or elsewhere, and to carry on the business of a mining, milling, smelting, and metallurgical company in all its branches; to acquire and turn to account any patents, patent rights, &c., to purchase, lease, or otherwise acquire, settle, improve, colonize, farm, and cultivate lands and hereditaments in Australia, or elsewhere. Registered office, 2, Fenchurch Street, E.C.

Lake George Mines (Limited).—Registered October 8 by Clarke, Rawlin, and Co., 66, Gresham House, Old Broad Street, E.C. Capital £150,000, in £1 shares. Objects: To adopt and carry into effect an agreement expressed to be made between the Lake George United Mining and Smelting Company (no liability) of Sydney, N.S.W., and the Exploration Company (Limited) and the company; to acquire any mines, mining rights, claims, concessions, options of purchase, &c., in Australia or elsewhere. Registered office, 20, St. Swithin's Lane, E.C.

Bear Creek Petroleum Company (Limited).—Registered October 1. Capital £50,000, in £1 shares. Objects: To adopt an agreement expressed to be made between the Goole Ropery and Ship Chandlery Company (Limited) of the one part, and this company of the other part, for the acquisition of the business of the said Goole Ropery and Ship Chandlery Company (Limited) at Goole, Yorks, and to develop and extend the same.

Bulawayo Land Investment Company (Limited).—Registered October 5. Capital £100,000, in £1 shares. Objects: To acquire any land or other property in Bulawayo or elsewhere in South Africa, and to carry on business as land agents, builders, brick makers, contractors, merchants, bankers, &c.

Mount Durward Syndicate (Limited).—Registered October 5. Capital £36,000, in £1 shares. Objects: To acquire the mining property known as the Dalcouth Hill Estate, situated at Cargo, Par. of Ashburnham, Lichian Mining District, N.S.W., upon the terms of a certain agreement, and to develop and turn to account the same.

French Flagstaff Gold Mining Company (Limited).—Registered October 5. Capital £25,000 in £1 shares. Objects: To acquire and turn to account a certain property known as the Flagstaff Quartz Mine, situated in Baker County, State of Oregon, U.S.A., and with a view thereto to enter into an agreement with La Société Civile Minière de Flagstaff and others.

Atlas Explorers' Finance Syndicate (Limited).—Registered October 7. Capital £100,000 in 10,000 ordinary shares of 10s. each and 23,000 deferred shares. Objects: To enter into an agreement (made September 29) with G. S. Masters, and to carry on, or assist in any financial, commercial, mercantile, industrial, mining, and other operations in the United Kingdom or elsewhere.

Royal Standard Gold Mines (Limited).—Registered September 29 by H. D. Kimber and Co., 79, Lombard Street, E.C., with a capital of £200,000 in £1 shares, to acquire by purchase, lease, or otherwise, the property known as the Royal Standard Gold Mine, situated in the Hawaiki mining district, New Zealand, and to develop, work, deal with and turn to account the same, and further to acquire any mines, mining, water and other rights, grants, leases, claims, concessions, options of purchase, metalliferous land, &c., in any part of the world, to work, develop, deal with and turn to account the same.

CONTRACTS OPEN:

FOR MINE, QUARRY, RAILWAY, AND ENGL. ENGINEERING WORK, STORES, &c.

* * We shall be obliged by being promptly placed in possession of particulars regarding contracts open for competition, and of the results of successful tenders. In the latter case contract prices should be given.

The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

Creosote October 19 (Great Yarmouth).—For the supply for three years from November 2, of 21,000 gallons, more or less of creosote annually, as per specification, for the Great Yarmouth Port and Haven Commissioners. Specification, with form of tender, can be obtained on application to Mr. J. Tolver Waters, clerk. Written applications to be accompanied by a stamped directed envelope. Tenders, endorsed "Creosote," to be sent to the clerk, 2, South Quay, Great Yarmouth, by noon on 19th inst.

Coal, October 19 (Bedford).—For the supply of coal and coke at the Shire Hall, Bedford, for 12 months from November 1, for the Standing Joint Committee. About 33 tons of household coal and 35 tons of small coke will be required. Tenders must quote the price per ton, and must be endorsed "Tender for Coal," and be forwarded to Mr. Marks, Clerk of the Peace, Shire Hall, Bedford, by 10th inst.

Coal, October 20 (Plymouth).—For the supply of 203 tons of large house Newport red ash or Vivian's Morla coal for the guardians. The contractor will be required to enter into a bond with two sureties for the fulfilment of contract, and the names and addresses of the proposed sureties must be stated in the tender. Tenders by 11 a.m. on 20th inst. Mr. W. Adams, clerk, 13, Princess Square, Plymouth.

Goods Wagons, October 21 (Christiansburg).—For the supply of 10 goods wagons to the Norwegian State Railways. Tenders, endorsed "Grusvogne," to the Direction of the State Railways, Iernbanetorget 8, Christiansburg.

Copper, October 24 (Lisbon).—For the supply of copper rod and rivets to the Royal Portuguese Railway Company. Tenders to the Chief of the Stores, Santa Apollonia Station, Lisbon, and particulars also obtainable at the Paris office of the Company, rue de Chateaudun, 28.

Railway, November 8 (Sofia).—The Sarembeg and Yenil Zagra railway contract, of which various particulars have appeared, is now advertised for November 8 as the date of sending in tenders. Application should be made for particulars to the Bulgarian Ministry of Public Works at Sofia.

Pumps, November 9 (Hayst-sur-Mer, Belgium).—For the supply and erection of machinery and pumps for the waterworks and sewers. Particulars for 2 frs. (1s. 7d.) from L'Administration Communale, Hayst-sur-Mer, Belgium.

Coal (Maryborough).—For supplying coal to the schools of the Maryborough and Swanrigg School Board. Such coal to be delivered to the respective schools as and when required. Tenders to be sent to Mr. G. Wood-Turney, clerk, School Board Offices, Maryport.

THE SACK ESTATES AND MINING COMPANY (LIMITED) are advised by mail that the first ordinary general meeting will be held in the board room, Johannesburg, on Monday, November 9, at 11 a.m., the business being directors' report, balance-sheet, &c.

THE SCOTCH RAILWAY COAL BILL.—The cost of the coal and coke used in the locomotive departments of the three principal Scotch railways in the six months ending July 31 this year was as follows:—Caledonian, £59,962; Glasgow and South-Western, £26,939; North British, £63,817. The corresponding outlay in the corresponding period of 1895 was:—Caledonian, £66,470; Glasgow and South-Western, £28,802; North British, £68,375.

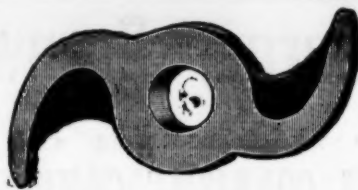
GOLD IN TAVOY.—A highly productive reef of gold has been found on Mr. J. D. Watson's 400 acre coffee estate in Tavoy. A company is being formed in England to work it. The reef extends beyond Mr. Watson's grant, and we understand a Calcutta syndicate has acquired mining rights beyond Mr. Watson's grant. Coffee grows well enough in Tavoy, but the high price of labour and the absence of good roads made a profit out of its cultivation difficult. The Tavoy climate, although the rainfall is heavy, is not unhealthy, and in many places remarkably like Ceylon's.—Indian Engineering.

SCOTCH MINERAL TRAFFIC.—The receipts of the three principal Scotch companies for the conveyance of minerals were as follows in the six months ending July 31, 1896:—Caledonian, £543,586; Glasgow and South-Western, £163,155; North British, £517,164. The corresponding receipts in the corresponding period of 1895 were:—Caledonian, £509,776; Glasgow and South-Western, £160,381; North British, £479,162. There has been, accordingly, a considerable improvement of late in this branch of traffic.

DRUMBOY WORLD'S PATENT DRILL SHARPENER COMPANY (LIMITED).—The new board of this company has been conceded to the request made by a certain section of shareholders at the general meeting to allow two of their nominees to become directors. For this purpose, Messrs. Patterson and Marshall have resigned their seats in favour of Messrs. Horsfall and Ranson.

STEEL

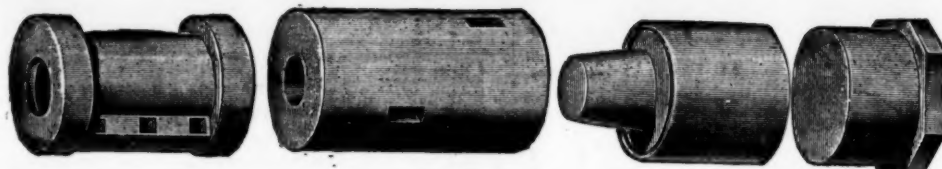
CASTINGS AND FORGINGS



FOR

MINING MACHINERY

HADFIELD'S STEEL



FOUNDRY CO., LTD.

SHEFFIELD.

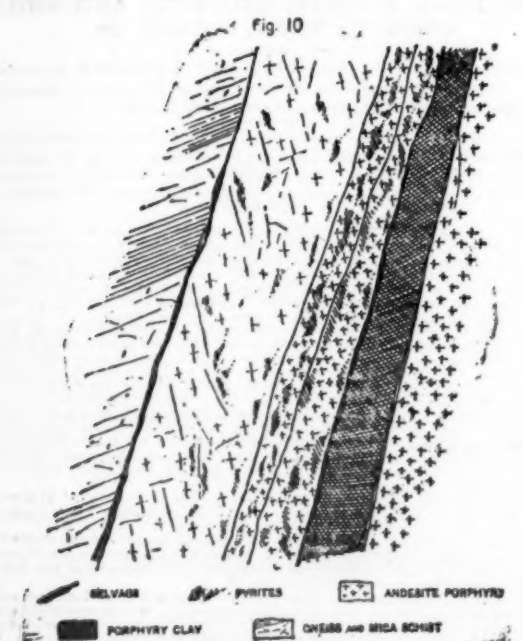
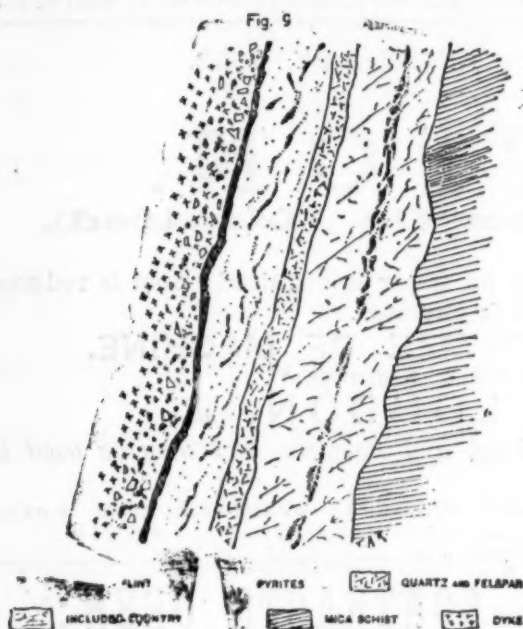
HECLA WORKS,

VEIN WALLS.*

By T. A. RICKARD, Denver, Colorado.

(Continued from page 1278.)

THE California Mine, in Gilpin County, offers many examples of such vein phenomena. Figs. 9 and 10 represent the western ends of the 2000 feet and the 2100 feet levels, as seen on July 13, 1892. In the first the vein is seen to lie between mica schist on the foot and porphyry on the hanging. The porphyry forms part of a dyke



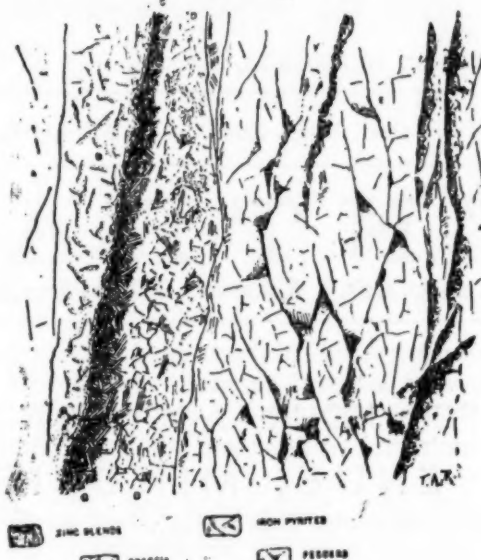
17 feet thick of dacite or quartz andesite, and is both brecciated and much decomposed near the lode, from which it is separated by a dark band of flint, which consists of small fragments of porphyry cemented together by a very dark chalcedonic quartz. Underneath this there are 5 inches of white kaolinised porphyry containing threads of iron and copper pyrites. Next comes 1 1/2 inch of quartz and feldspar intermingled; then a band of included country, part gneiss and part mica schist, which is subdivided by a streak of pyrite. Finally, there is an irregular footwall; the lode filling shaling off into the soft mica schist which underlies the vein.

The lower level, shown in Fig. 10, exhibits a marked difference. The lode has crossed the dyke, and the porphyry forms the footwall. Next comes a thickness of 6 to 8 inches of white, soft, decomposed porphyry, then a black selvage with slicken sides on the lower side. Then come two bands of mineralised porphyry separated by thin partings. The main width of ore consists of

about 2 feet of lode filling traversed by patches and streaks of pyrite. Fragments of porphyry can also be recognised in it. This is separated from the overhanging gneiss and mica schist by a selvage of varying thickness.

In the neighbouring Indiana claim the California vein exhibits certain changes, the most evident of which are the absence of selvages, the indistinctness of its limits and the brecciation of the vein filling. This is suggested in Fig. 11, which represents the

Fig. 11



breast of a slope above the 800 feet level west as observed November 13, 1895. The enclosing country, A A, is a granite almost destitute of mica. The part B is bespattered with pyrite. The best ore is a seam, O O, of black zinc blende lining the hanging wall. D is evidently brecciated. The larger part of the section consists of slightly altered country, E E, reticulated with seams of blende, following joint fractures. The footwall of the vein is considered to be under the bands of zinc blende and copper pyrites occurring along F F. The entire width is about 4 feet. The lode has departed from the dyke with which it is so closely associated in the neighbouring mine; but the workings show that it meets this dyke at intervals, and is benefited by the intersection.

That the vein follows the line of a fault can be seen by examining the walls of the 2000 feet level in the California Mine, more particularly at points between 350 and 450 feet west of the shaft, where the lode has left the dyke entirely, and is encased in the gneiss and mica schist. The country rock on the two sides of the drift is not the same. The extent of the throw of the fault, however, could not be measured.

In the course of the foregoing descriptions of lode structures mention has been repeatedly made of the occurrence of clay selvage, following sometimes one, sometimes both, of the walls of a vein. This clay may occasionally be material precipitated from solution; ordinarily it is only crushed rock. It frequently encloses exquisite mineral specimens, because its soft consistency has permitted untrammelled crystalline growth. Most examples of well-developed crystals of native gold have been discovered under such conditions. This is the case at Cripple Creek, Colorado, where the gouge or clay has been dried and hardened near the surface, and as a crumbly earth, made purple by the presence of fluorite, carries beautiful crystals of gold pseudomorphic after sylvanite and calaverite. The exquisite leaf gold specimens, for which Farncomb Hill (Breckenridge, Summit County, Colorado) is so famous, are found imbedded in talcose clay. Large pieces of pure argentite are often found in such an environment as at the De Lamar Mine, in Owyhee County, Idaho. Wire silver also has been found in comparatively large amount encased in such a mud in many Leadville mines; notably at the Crown Point in 1886.

By reason of their opposition to the passage of water such seams of clay protect the rock surface of vein walls, and underneath them there will occasionally be found comparatively fresh and unaltered rock, having beautifully polished faces or slicken sides. At Ballarat, in Australia, I have seen many such rock faces like finished ivory in their smoothness, and streaked with black lines, due to the grinding of specks of pyrite. In the Bonanza Mine, Baker County, Ore., there could be seen quite recently an exquisite example of such an occurrence. In an upper drift there was at one place a surface of a few feet square (on one of the walls of a gold-bearing quartz vein) covered by a thin layer of black clay under which lay what seemed a white enamel of very remarkable delicacy. It could not be removed without breaking, because it was very friable, consisting essentially of crushed quartz partially recemented, probably by pressure.

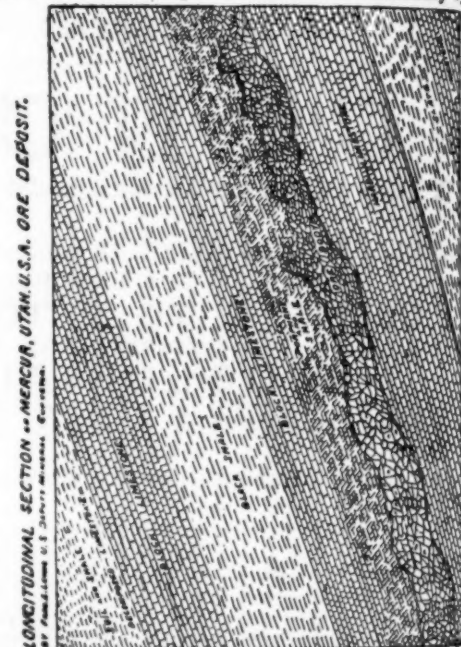
"The handwriting on the wall" is not always easy to decipher. The lines or striae occasionally to be seen upon its surface have been held to indicate the direction of that movement (or succession of movements) of the opposing rock planes to which the deposit of ore primarily owed the opportunity for its existence. These lines, however, sometimes have opposite directions within a short distance, and offer conflicting evidence hard to explain.

(To be continued.)

MERCUR, UTAH, U.S.A.

By FRED. E. LEWIS, U.S. Deputy Mineral Surveyor.

THE camp of Mercur, commonly called the Johannesburg of America, is situated in the Camp Floyd mining district, Tooele County, State of Utah, and is 50 miles north-westerly of Salt Lake City. The Camp Floyd mining district was organised 25 years ago; at that time silver was supposed to be the only mineral existing. In 1889, however, the rock was worked for the quicksilver it contained, but neither minerals showed a profit. In 1892, it was discovered that the low grade gold ores of this camp could be treated successfully by the



cyanide process. After experimenting with ores from the Mercur Mine for two years, the Mercur Mining Company erected a cyanide mill, which at the present time is treating 250 tons of ore per day at the small cost of 7s. per ton for mining and milling same. This company is now paying a monthly dividend of £5000.

The gold exists in a limestone formation, is mixed with cinabar, and has not yet been found in a free state, so that it will not show in the pan, and cannot be saved on the plates.

The present daily output of the camp is:-

Mines.	Tons.	Value per ton.	Loss per ton.	Gold Extraction.
Mercur	250	56s.	10s.	£575 0 0
Marion	60	40s.	7s. 6d.	92 15 0
Geyser	100	40s.	8s.	100 0 0
Sunshine	100	40s.	5s. 6d.	172 10 0
Sacramento	150	40s.	8s.	240 0 0
Total				£1240 5 0

It is estimated at the present time that there are £1,350,000 worth of ore in sight in the Mercur Mine, and over £1,000,000 in the Golden Gate Mine. The latter mine is owned by Captain De Lamar, who already has plans prepared for a mill of 500 tons daily capacity. It is reported that work will be commenced on this mill within the next 30 days.

There are also four other mines which have enough ore blocked out to justify the erection of mills, and two of these in operation now might be doubled in capacity with reasonable prospects of being kept in full work.

It is the opinion of the writer that in the course of three years this camp will have a larger output of gold than any other in the States.

A diamond drill boring is being made on the East Golden Gate property, as it is thought by experts that rich ore will be found on the top of the granite formation. The drill hole is now down 1000 feet, but all assays are kept very secret.

The district covered by this gold-bearing limestone is about 25 miles long and 10 miles wide, and with the exception of where faults, &c., are met with, it is all supposed to carry gold.

CORNISH PUMPING ENGINES.—The number of pumping engines reported for September is five. They have consumed 900 tons of coal, and lifted 6.8 million tons of water 10 fathoms high. The average duty of the whole is, therefore, 45,684,000 lbs. Lifted 1 foot high by the consumption of 112 lbs. of coal. The following engines have exceeded the average duty:—Dolcoath, 85 inch, 53.76 millions; Bassett Mines, 80 inch, 56.3 millions; Carn Dery, 80 inch, 51.1 millions.—*Lean's Engine Reporter.*

* A Paper read before the American Institute of Mining Engineers.

MINING IN ASTURIAS (SPAIN).

IRON ORES OF THE PROVINCE.

(FROM OUR OWN CORRESPONDENT.)

(Continued from page 1154.)

In addition to the before-mentioned districts, the Mieres Company draw a portion of their uses from their own mines at Santo Firmi, distant from the Oviedo Railway Station about 4 miles. These mines are connected with the railway by a narrow gauge line, which comes out above the level of the railway, so that the trucks are tipped direct into the railway wagons. From the Oviedo Station to the iron works there are only 16 kilometres, thus this ore put into the works costs the company about 2s. 10d. per ton.

This ore is inferior in quality, having about 43 per cent. of iron, and very high in silica. It has a very large mixing of iron, and a fairly representative collection of a portion of the life of the Devonian seas may be secured from it.

Many of these remains are pseudomorphs, the constituent parts of the shells being totally replaced by iron peroxide, without altering their forms or characteristic markings, but others are still comprised of the lime shells. The abundance of these remains has contaminated the ore with phosphorus, although for the most part it is held combined with the lime, and therefore eliminable in the blast furnace in presence of the flux used, which, as formerly stated, contains magnesia.

Formerly this ore was extensively used at the works, but at present it has been mostly replaced by that of Carreño, which is a cleaner ore, higher in iron contents, and lower in silica and phosphorus.

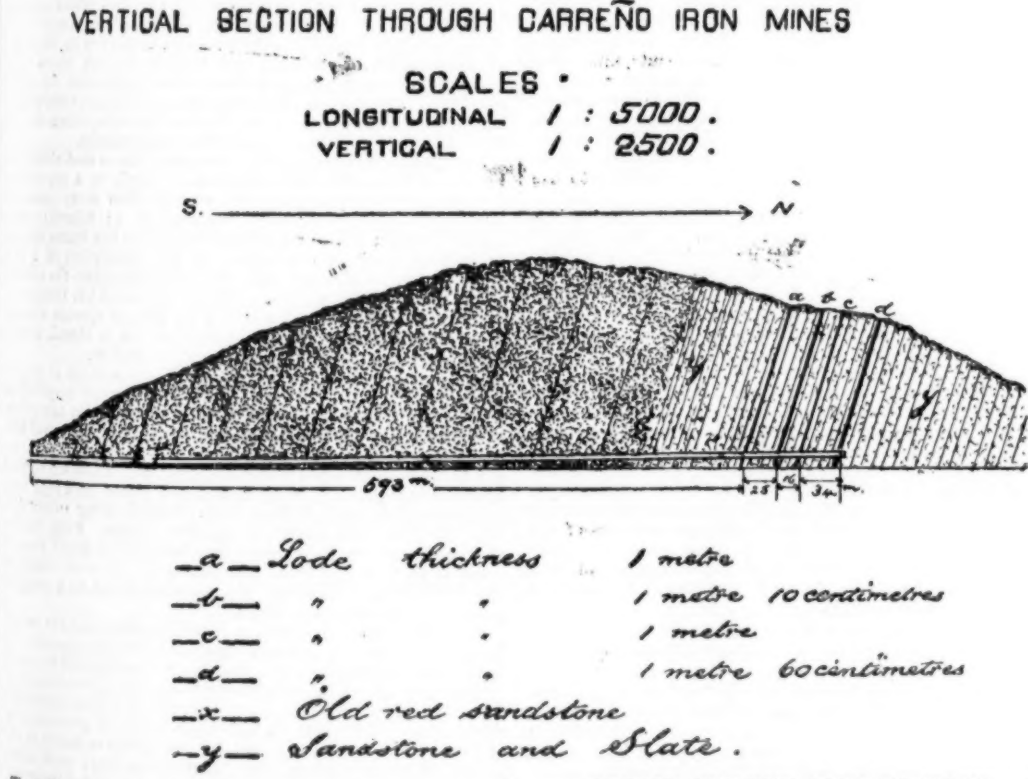
The beds from which this is drawn are a continuation of the Candás series, as are also the Carreño lodes; but it is to be noted that in the run of these lodes or beds southwardly, i.e., from the coast at Candás inland, they become poorer in iron contents, more broken up, and mixed with country, and more heavily charged with fossil remains.

The Carreño district may be taken as a general type of these Candás lodes in their most favourable condition, in what refers to the general regularity of the lodes, and the economic conditions for their working, and easy access to a shipping port of their output.

In view of this, it has been considered well to enter pretty fully into a general review of a group of mines located on these lodes at Carreño, in order that manufacturers may form an approximate opinion as to their merits or demerits.

The group of mines under review are being worked on a small scale, with an output of about 12,000 tons per annum. The extensive working of these can only be carried out after the Muel port in the Gijón Bay has been constructed, or sufficiently advanced to permit shipment in steamers of large tonnage alongside the quay. The contractors who have this port in hand are working very energetically, and within four years from now it is expected that a portion will be ready for the shipment of iron ore on the desired scale.

These Carreño mines enclose four parallel lodes of iron ore, running in an east to west direction along a mountain ridge composed for the most part of Old Red Sandstone and alternating beds of slate and sandstone. The lodes are interbedded in these. A vertical section across these, following the adit put in for the purpose of working out the ore, is as follows:—



The walls are strong and regular, as if they had been smoothed down mechanically, and there is no passing of the ore into them.

There are no roads on the north of the hill, nor is there a feasible way of constructing any at a small cost. The adit was driven from the south a greater distance, of course, but the Government road from Avilés to Gijón passes within 100 metres of the adit mouth, thus facilitating cartage.

The Veriña railway station is distant 6080 metres (3½ miles) from here. Thus carts taking 2 tons each make two journeys per day. At this station the ore is loaded into railway wagons and transported to the Mieres works, distant by rail 43 kilometres, or to the Duro works at Folgosa, about the same distance, or to Gijón Quay, distant 5 kilometres.

The regularity of the lodes has been proved by the outcrops and outcrops over a distance of nearly 5 kilometres, and this is the length of the concessions.

Mining has been carried on in the first two lodes cut, and about 80,000 tons of ore have been drawn up to the present. The cost of this lode into railway wagons at Veriña averages 4 pesetas 50 centimos per ton, or at the present exchange of 20 pesetas per £ sterling (3s.).

In the event of a market being opened to take (say) 100,000 tons of this ore per annum, a lot of preparatory work must be done in the mines, ore exploitation can be carried forward on such a scale. This will consist of driving (say) five adits on the north

side through the lodes, connecting these by tramway with the existing adit which has to be continued through the hill, the addition of a system of traction through this, from the north to the south side, by cable or otherwise, and a narrow gauge line from the south end to the Muel port, which will have a total length of about 7700 metres (4½ miles). The ore can then be put free on board, every charge, as well as amortisation, included, at a cost of 2s. 8½d. per ton, taking the exchange of the £ sterling as before at 30 pesetas.

The whole of this can be done with the following outlay for preparatory works, and working capital, the amortisation as stated being included in the above cost per ton:—

Driving adits, &c.	£3018
Tramways and sidings, north side	1549
Material for transport through adit	416
Narrow gauge railway to Muel, and rolling stock	9033
Trams, tools, &c.	834
House, warehouse, smithy, &c.	667
Cash working capital	2969
Total	£18,416

There is an average of 60 metres of backs above the adit throughout the run of the lodes included in the mines, and the above preparatory works would permit the working out of these.

The ore contained in them above adit is the following:—

Width.	Height.	Length.	Weight per cubic metre.	Tons.
4.60	60	4,027	3	3,334,356
Less drawn to the present				80,000
				3,254,356
Deduct for wastage, &c., 1-5th				640,871
Ore to be drawn				2,603,485

The assay of the ore is as follows:—

	Per cent.	Per cent.
Insoluble residue	15.35	
Peroxide of iron	74.91	= Fe 52.80
Protoxide of iron	0.47	
Manganese oxide	0.20	
Alumina	4.27	
Lime	0.44	
Phosphoric acid	0.88	= P. 0.38
Sulphuric acid	0.68	= S. 0.23
Water and carbonic acid	2.76	

The general details given above may be considered as applicable to mines that may be taken up here and there along the run of the Candás series of lodes in the northern portion of the province of Asturias.

GERMAN BARB WIRE.—It is said the German trade in barb wire to Japan is suffering greatly from American competition. Hamburg exporters are being forced to buy American barb wire. Confronted by the alternative either to lose this trade or to buy American barb wire themselves, they decided to take the latter course, because they were afraid that the loss of this trade might result in the loss of trade in other lines.

OTTOS KOPPE DIAMOND MINES (LIMITED).—The secretary informs us that the shares in the new company have been considerably over subscribed, and that the first batch of allotment letters have been posted.

MOTIVE POWER AT THE CONCORDIA CONSOLIDATED MINES, LIMITED.

By Captain C. C. LONGBRIDGE, M.F.I.M.E., M.I.M.E., &c.

THE Concordia Consolidated, in the province of Salta, North Argentina, are a group of copper-silver mines, recently inspected by the writer, and found to present considerable difficulties in the generation of motive power. The water from the mines was scanty and acid; and without chemical treatment unsuitable for boiler purposes. No other available supply was to be found in the immediate vicinity. At a distance, however, of about 5 miles from, and some 200 to 300 feet lower than, the mines there were two streams, which, with a little labour, could be united to give a joint flow of 337 cubic feet per minute; while in another direction at about the same distance, as the crow flies, and slightly above the level of the mines, was another stream with a flow of 222 cubic feet per minute. Fuel also was not abundant, the only kinds procurable at the mines being tola, anagui, and espinilla, all species of light brushwood, with yarata, a resinous moss, and turba, an inferior peat. The price of any of these fuels was 50 cents (8d.) per 100 lbs. delivered at the mines. The question to be decided on these data was whether it would be better to pipe the water by gravity from the higher source, in sufficient quantity for ore dressing and for generating by steam the power required, namely, 100 horse-power; or, which also was possible, to pipe the 222 cubic feet of water down to a point where its effective head would suffice to generate, transmit, and deliver electrically at the mines 100 horse-power, relying for concentration on dry methods, supplemented by the mine water, which was then 16,800 gallons a day, but likely to increase as the mines became deeper.

The problem was worked on the spot, but with fair accuracy as to figures, by the writer as follows:—The cost of laying a water service from the upper, in every way preferable to pumping from the lower, source was estimated at £2327, including 6 miles of hydraulic pipe, freight and labour, but exclusive of collecting tanks at the mines. Taking interest and depreciation at 7 per cent., this outlay represented an annual charge of £231 for water. In calculating the annual cost of fuel, it was reckoned that there was an equal supply of brushwood, yarata and turba; and that by mixing these in the following proportions, brushwood 1134 kilogrammes, yarata 200 kilogrammes, turba 500 kilogrammes, the consumption would be about 10 lbs. per indicated horse-power per hour, or 1000 lbs. for the 100 horse-power required. Assuming the engines to run for 13 hours a day, the cost under this head per year of 290 working days would be £1256. This was a low estimate, as pumping would have to be carried on every day in the year, and some fuel would be necessary for domestic and other purposes. But the lower figure was taken in order to credit the use of steam power with the advantages resulting from the utilisation of the surplus water for ore dressing. As, on account of transport difficulties, it would be necessary to split up the 100 horse-power into small units, the cost of engine and boiler power was taken as £10 per indicated horse-power, or £1000, with an additional £400 for freight, fittings, and erection, making a total of £1400. This item, allowing 15 per cent. for interest and depreciation, represented £205 per annum. Superintendence, wages, repairs, and stores, though likely to be somewhat larger in the case of steam, were reckoned the same in calculating the costs of an electric transmission scheme, and were, therefore, omitted in both instances, as not affecting the comparison. With this omission, the total annual cost of generating by steam 100 horse-power at the mines amounted to £1692.

The expenditure on plant and erection for electrically generating, transmitting, and delivering 100 horse-power at the mines worked out at £7300. This included duplicate generating plant. Interest and depreciation were, as before, placed at 15 per cent., and the capital outlay thus represented an annual charge of £1095. The use of the water was free; and, superintendence, wages, stores, and repairs being omitted, the comparison between the annual charges for steam and for electric power was as £1692 to £1095, showing a saving of £597 per annum in favour of the latter. But this was not the only advantage; for, while the costs of the electric power would remain stationary, those of steam power would annually increase as the fuel supply decreased, until ultimately the cost of fuel would equal the value of the product of the mines, and further working would be rendered impossible. There was also an objection to tapping the water supply for consumption at the mines. It was easily conceivable that land owners and mine proprietors, through whose property the water ran, might object to any diminution of their supply, and might at any time involve the company in litigation, resulting either in payment being demanded for the water, or in the supply being cut off. On the other hand, in the case of the electric transmission scheme, the water, after passing through the turbine houses, was released intact. Application, therefore, for the use of water as prime motor was made and obtained from the provincial Government of Salta.

With a view to roughly estimate the probable annual rise in the price of fuel, the writer made a calculation as follows:—On land growing brushwood bushes were found at about 5 feet apart, yarata and turba lying rather in beds, but for the purpose of estimation it seemed fair to consider that 10 lbs. of fuel of one sort or other could be obtained at linear distances of 5 feet. Every square mile of such land, therefore, would yield 11,151,360 lbs. of fuel. The consumption for steam power was reckoned as 13,000 lbs. per day of 13 hours, or 4,745,000 lbs. per year of 365 days, the full estimate being taken to cover daily pumping, also firewood for domestic and other purposes. Theoretically, therefore, every square mile of ground would supply fuel for 2½ years' consumption. As a matter of fact, however, only about 1-20th of the land carried fuel, hence, to obtain 2½ years' supply, it would be necessary to clear 20 square miles. The exhaustion of the fuel, therefore, would proceed at the rate of 8.7 square miles per year. Supposing the ground to be cleared evenly in a circle round the mines, the supply would recede at the rate of 1.6 miles yearly. Assuming the first cost of carriage to represent one-third of the total price of the fuel, and on account of the greater difficulties of transport this figure to increase in a slight geometrical progression, as the fuel zone receded, then in less than three years the price of fuel would be doubled, and in six years probably trebled. If, however, as is more than likely, other mines were to open in the vicinity, the rise in price would be still more rapid and disastrous. Thus the profits of the mines would annually decrease, and before many years had elapsed it would be necessary either to abandon work, or to introduce a complete fresh plant, seeking recourse to water power for electricity, when possibly the water power would no longer be available. It was, therefore, in every way cheaper and more prudent to at once incur the larger capital outlay in laying down electric plant, and supplying the mines with a power that is undoubtedly far the most convenient for mining purposes.

BRITISH GUIANA'S GOLD INDUSTRY.

The R.M.S. *Esik*, which left Georgetown on the 17th ult., took gold to the value of \$106,102.01. The shippers were:—
Colonial Bank 2632 11 19
British Guiana Bank 3367 5 14
Total 5999 17 9

The following are the returns of gold entered at the Department of Mines for the weeks ending:—

	September 12.	September 19.
	Ozs. dwts. grs.	Ozs. dwts. grs.
Barima	62 17 13	96 18 6
Burima	1494 17 13	219 0 18
Cuyuni	799 7 10	506 0 18
Demerara	—	—
Essequibo	561 1 9	522 8 2
Groote Creek	48 10 3	34 12 1
Maxaruni	—	3 9 16
Potaro	1169 14 1	606 19 0
Parani	22 1 6	123 18 18
Total	4158 9 9	2113 7 7

Export of gold from January 1 to September 29:—

	Ozs. dwts. grs.
1896	82,159 8 10 at \$1,461,064.76
1895	83,963 17 11 at \$1,483,351.67

MINING IN VICTORIA.

ENGLISH "FLOATS" AT TWIST'S CREEK.

(FROM OUR OWN CORRESPONDENT.)

ADMIRERS of the good old times obtain a melancholy satisfaction from the fact that "The Golden West," as it is now termed, is not likely to rival any of the Victorian gold fields of the fifties, and probably they are not far wrong when they go further and say that it will not long rival Victoria of to-day as a place in which gold mining is carried on as a legitimate industry, presenting, when honestly conducted, every consideration for the investment of the vast sums of accumulating English capital. Within the last month a number of mines in the Owen's Valley, and scattered over the locality known in the palmy days as the Owen's diggings, have passed into the hands of English companies—notably, the Monarch of the Glen, the Bon Accord, the Homeward Bound, the Mount Orient, the Hand H, and several others. Two of the latest sent home for flotation from the Owen's field are the Scandinavia and Polar Star, at Twist Creek, near Yackandandah, a locality that produced from three co-operative claims from April, 1864, to December, 1869, 11,695 ounces of gold from the famous reefs on which the two mines just cited are located. To give some idea of the resources of the Owen's district, appended is a list of the returns of gold won, as supplied by the Mines Department:—

Year.	Ounces.	Value.
1852	27,966	3
1853	198,436	10
1854	133,588	0
1855	192,027	13
1856	342,829	0
1857	346,809	0
1858	245,291	10
1859	284,017	0
1860	286,616	15
1861	261,713	10
1862	207,143	10
1863	192,419	10
1864	179,157	10
1865	152,683	10

Total 3,055,690 1

The Scandinavia reef has been the best reef on Twist Creek for yields of gold, taking its depth into consideration. It was discovered in 1862 by Jordan Knudsen, but he did not hit on the best shoot of gold. This was found a few months later by Ericson and Jacobsen near the gully, and from then up to 1865 the crushing went from 1 to 3 ounces per ton. Turning up the mine's reports for 1872, I find in that year the owners crushed 1366 tons for 1336 ounces. In that year they reached water level, and in accordance with the free and easy methods of mining in those days, the claim was abandoned. Up to the last hour it was a consistent yielder. The reef averages 1½ foot to 2 feet in width, and the shoot of gold worked was 200 feet in length. There are two parallel lines within the Scandinavia lease—viz., Keep it Dark and Shamrock, but they are only small, and appearances indicate that they will join the main reef at a depth. About 600 feet further along the line northwards in the gully the reef was known as the Independent, and was there from 3 feet to 4 feet in width. Here the reef was only worked to a depth of 60 feet, but, as it went only 1 ounce to the ton, was abandoned. In the Scandinavia shaft will be found 1½ ounce material in the bottom ready to operate upon.

The Polar Star is an adjoining lease to the north-west, on the top of a steep hill, literally full of parallel lines of reef, and old miners are of opinion that a long tunnel driven across the hill would open up immense bodies of stone. This claim was about the first pegged out on Twist Creek on the Polar Star reef, by Michelson and Smith in January, 1860. It comprised four men's ground, and they commenced operations by putting two tunnels into the hill, one along the line halfway down, and the other a cross tunnel at the foot of the hill. The former is about 250 feet in length, and the latter 600 feet. The little tunnel was put in so as to work the reef advantageously. The long tunnel was put in to try and catch the reef at a depth of 600 or 700 feet, but, like many other rule-of-thumb calculations, the desired reef was never obtained, nor was any attempt made to crosscut the hill with the view of picking up the Little Polar Star reef, which outcrops only 50 feet away from the workings on the surface. No doubt, if this tunnel was continued ahead another 200 feet, the Polar Star and Little Polar Star and other lines would probably be met with. The exact returns from the Old Polar Star claim cannot be ascertained, as no battery was erected until 1865, but one of the former owners—Mr. Michelson—states that the first 144 tons yielded 420 ounces. The crushings in the Mines Department return for 1865 from this claim was 580 ounces from 945 tons. Most of this stone, however, was obtained from the big reef. Mr. Robert Baines, Mr. Henry Dunstan, and Mr. R. W. Michelson, who have reported on the two leases, are very old and respected mine managers in Yackandandah, competent and careful men, who are not likely to exaggerate the condition of affairs. The nearest English owned mines are the Hillsborough and New Hillsborough, about 8 miles due south. A full report on the reefs at Twist's Creek is given by Mr. R. A. F. Murray, Government Geologist, in No. 8 Progress Report, 1894. Referring to the two lines of reef in question, he states:—"The cause of abandonment, and to all appearance the true one, was the diminution in the yield of gold, owing to the stone becoming more highly mineralised with depth, and the absence of proper appliances for saving and treating the pyrites, in which a large proportion of the gold is, doubtless, locked up. . . . The Scandinavia reef was worked to 150 to 200 feet, and abandoned owing to water and small engine power." A great drawback at present to the advancement of the Yackandandah district is owing to the fact that most of the country is in the hands of the Hon. J. A. Wallace, who has taken up a similar position in regard to furnishing gold returns in defying the Government as Mr. George Lansell did at Bendigo a few years ago. The Mines Department ultimately induced the latter to give way, and the Minister proposes to reach Mr. Wallace in the new Mining Bill. It is much to be regretted that recent information concerning the yields of the district is withheld. There is no limit to auriferous land, and I have no doubt that in the course of a few months, with the immense impetus now given to mining throughout the colony, and the introduction of English capital to the mines under notice, the place will again flourish as it did in the days of the fifties, for the fact remains that the past history of the Twist Creek lodes deservedly characterises them as perfectly legitimate and promising mining ventures.

Rich Discovery at Mount Moliagul.

Two important finds have taken place near Moliagul during the past week. A nugget, weighing 60 ounces, was discovered at Langham's Flat, not far from Rheola, on the old Berlin diggings. Closely following on this news came the exciting intelligence of the discovery of a rich reef by Messrs. Donovan and Sons about a mile south of Moliagul, and adjoining the

ground in which the "Welcome Stranger" nugget was found. A lump of gold weighing 2230 ounces in the pure—and within ¼ of a mile due north of the claim from which £10,000 of gold was taken out of 1 square foot of ground in 1866 by a co-operative party. The reef, which has been opened up for about 30 feet along its course to a depth of about 10 feet, is 3 feet wide, between well-defined slate footwall and sandstone hanging wall. The reports coming in describe it as one of the richest finds recorded in the colony. The discoverers showed me specimens of the stone taken from the depth mentioned, which are beautifully studded with coarse gold, and goes right through. If the main body of the stone is anything like the specimens it will yield over 50 ounces to the ton. In conversation with Mr. E. A. Ball, consulting engineer, who has just returned from the field, inspecting in the interest of a London firm with whom it has been placed under offer by cable, he assures me the poorest of the stone will yield 3 ounces, while a great part of it gives over a pound weight of pure gold to the ton. The discovery has been named "The Mount Moliagul Reef." Messrs. Donovan and their friends have taken up about 70 acres on the line, and the whole country is pegged out for miles. The excitement in the district is great.

A Discovery at Big River.

A new reef has been opened on the Australian Prospecting and Mining Company's lease at Big River, near Mount Arnold, a few miles north-north-east of the British Victorian Mount Morgan Mine. It has been traced for about 1½ miles by outcrops on a slightly west of north direction, and prospects have been taken from along the whole line. In the course of a conversation with Dr. John Storer and Mr. Colquhoun-Thomson, of the Tontout Nickel Mines, New Caledonia, who visited the ground on behalf of some capitalists, they expressed every confidence in the discovery, and are of opinion it is a permanent lode. Some men are engaged getting out rich stone reported to yield 7 ounces to the ton. Dr. Storer showed me a dish prospect from the cap of the reef, which fully bears out the published reports. The locality is a good one, and lies within one of the richest gold-bearing belts in Victoria. A line drawn north-west and south-east, corresponding with the direction of the strata from the Tangle in West Gippsland to Alexandra, which cuts the Victorian Mount Morgan field, will pass through this latest find. Further development of the line is anxiously awaited. The prospecting company themselves preserve great reticence, but in spite of this the ground all along the ranges and gulleys in the vicinity has been taken up.

The Quest of Sulphur Deposits.

Reference has been made on several occasions of late in this column to the sulphur deposits in the Pacific Islands. With the announcement of the registration of the Anglo-Sicilian Sulphur Trust, formed in London to consolidate the sulphur interests of the various sulphur-producing countries of the world, comes a flood of enquiries from Europe concerning the resources of the south. Nobel's Explosives Company (Limited), Glasgow, are amongst the list of firms seeking information as to whether they can depend on the source of supply in this quarter for their factory in the Transvaal. Chemical and engineering experts are coming here by every steamer from Europe on this mission. The representative of a large firm of sulphur refiners at Antwerp, bound for the Pacific, landed here by the last mail packet. A powerful syndicate is being formed in the Australian capitals to work the New Zealand and Vanna Lava deposits in opposition to the Anglo-Sicilian Trust. How far the latter syndicate will be able to succeed without including the producers on this side is a matter for serious consideration. The copper syndicate formed a few years back in Paris could tell a dismal tale, simply through ignoring the South Australian deposits.

When copper fell from £80 to £40, or thereabouts, mine after mine in South Australia closed down, and it was reckoned had passed out of existence; by mischance these were left out of the trust; immediately on the rise they sprang to life again, and such institutions as the Comptoir National d'Escompte de Paris of that day can tell how the South Australian copper mine owners sweated them down by pouring copper into the market.

The trust battled with it for a time; the more they bought, the more the mines produced; it was a case of "buy or bust." The South Australian ring was getting the hard cash, and the trust piling up thousands of tons of copper until the Paris institutions gave out. South Australia trusted the copper trust, and it will be an evil hour if the Anglo-Sicilian Sulphur Trust ignore those who hold the key to the vast sulphur resources of Australasia. Even at 55s. per ton for good rough Sicilian sulphur, 95 to 98 per cent. pure, in the European and American markets, with the present low freights by iron sailers from Australia to British and Continental ports, the Australasian product can compete, and presuming that through the action of the newly-formed trust, prices harden to 80s., the working of all the known resources on this side could maintain a continuous output of over half a million tons of raw sulphur per year. It is quite certain that if the Tanna, White Island, Vanna Lava, and other southern centres of production are left out of the combination, sulphur buyers all the world over need care very little about the altered condition of the market. Any advance would not be for long; the demand would cause hundreds of mines to spring into activity.

More Victorian Firms in London.

It is pleasing to note that the old-established firm of Clarke and Co., of Melbourne, the oldest mining firm in Australia, have added the promotion of London "floats" to their extensive business. A feature which has contributed to the success of this firm is due to the principle rigidly pursued by them—that they will not put any mine on the market unless it is of such a character as they can hold a large interest in it themselves.

They always head the application lists with their own name; it then becomes a game of follow the leader. They never bother much with mine reports, and strictly following these lines they have built up without doubt the largest sharebroking business in Australia. Mr. Alfred Clarke leaves for London at the end of the year, and in the course of conversation explained that his firm would adopt a similar practice in regard to London "floats." Messrs. Clarke and Co. are the largest holders of the Ballarat Western Leads Mine now on the London market.

Another enterprising house settled down, at Dashwood House, is a branch of Messrs. Fiedler and Wharton, one of the leading Melbourne firms of legal managers and mine accountants. This firm has the management of the Broken Hill Junction North Silver Mine, in connection with which a London office is to be opened at once. The firm on this side are also managers of the Mount Greenock Estate Company Gold Mine, an English property. Mr. Fiedler will conduct the London office. From their high reputation on this side, the English public have a guarantee that the mines they are connected with will bear investigation.

Messrs. Coles and Coles, another firm of good standing in the mining world of Victoria, have added the London business to their numerous concerns. The local mines under their management have given adequate proof of their permanence and efficiency, and like other enterprising firms, are spreading themselves out. Mr. F. G. Coles, one of the firm, is at present in London attending to the new branch of the business.

Just on closing my letter, news has come in that a crushing from the Sydney reef at Twist Creek has gone 85 ounces to dwts. for 25½ tons treated, besides another 10 ounces obtained from the concentrates. The outlook in that district is a cheerful one.

Shipping Difficulties with West Australia.

Western Australia, from monetary and shipping points of view, is in a unique condition, as times go. There is no connection to the inflow of capital from London on account of mining flotations, and, indeed, it has increased of late. Then the inflow of population and merchandise is unabated, originating problems of a serious nature. Where and when the present extraordinary condition of affairs is to end no one can tell, for the answer is ultimately dependent upon the actual production of gold. In the meantime large steamers, British, German, and Belgian, are engaged in the trade between Western Australia and the rest of the Australian colonies, and the position of affairs at Fremantle will be gathered from the following telegram which has been received by the Victorian Steamship Owners' Association at Melbourne:—

"Replying to questions asked by member for Fremantle in House, Government replied in course long debate that for present ships would have to be converted into warehouses rather than allow to discharge cargoes to rot on beach. Twenty-five steamers now here; average delay to each impossible forecast. Suggest either increase freight, special storage, or demurrage charge. Increased lighterage no assistance, rather intensify difficulties, as insufficient berths are available for existing craft. Impossible to have increased accommodation under six to twelve months, then probably inadequate."

THE MACARTHUR-YATES PROCESS OF GOLD EXTRACTION, DRY CRUSHING, WITH DIRECT AMALGAMATION AND CYANIDATION.

By JOHN YATES.

AFTER a few words of introduction the writer said:—The process is one of combined amalgamation and cyanidation. This plant consists of four barrels with amalgamating apparatus, six 100 tons leaching vats, three solution pumps, and three extractor boxes, &c., together with the necessary gearing, piping, &c.

The ore is dry crushed by any suitable machinery, that being preferable which produces the most uniform product. A three stages crushing plant will be found suitable, the respective stages being (a) rockbreaker in headgear at shaft; (b) reciprocating fine crushers, and (c) rolls. The mesh to which the ore must be reduced depends to a great extent upon the character of the ore, but 400 meshes per square inch will, in many cases, be found to give good results. The crushed ore is raised by elevators to the barrels, these being 6 feet long by 4½ feet in diameter internally, and their shafts, which pass through them, support the amalgamating apparatus, consisting of a light rectangular iron frame, so designed as to be free to rotate on the shaft, and carrying two rectangular amalgamated plates of corrugated copper.

The large aperture of the barrel, together with the movable frame, affords free access to the plates for removal and renewal, it being possible to take out a set of plates after a run and replace them by others ready dressed in three or four minutes. The amalgamated surface exposed by the two plates amounts to 29 square feet. The frame carrying the plates is so adjusted on the shaft as to yield to the pressure of the ore on the plates at the moment of starting, and permit of both plates being brought to the aperture, and thus within easy reach for manipulation. The barrels discharge into casings, and the pulp is conveyed thence to one of the six leaching vats, where the ore is subjected to an ordinary percolation treatment.

Such is the efficiency of the corrugated plates that about one hour's agitation will, with many ores, result in a satisfactory extraction by amalgamation, the charge then being passed to the vats. The method of working is as follows:—After freshly-dressed plates have been inserted in the frame, ore and cyanide of potassium solution, in the proportion of 2 to 1 respectively, are charged into the barrel together, the amalgamated plates being vertical. When the barrel has received its full charge of 2½ tons of ore and 1½ tons of cyanide solution of suitable strength, the charging aperture is closed, a tight joint being secured by means of a rubber washer.

The barrel is then started, and is driven at about 15 revolutions per minute for one hour, when it is stopped as quickly as possible by means of the brake with the aperture uppermost, the cover is immediately taken, and the barrel given a half turn to discharge. The discharged barrel is then turned over to permit of the amalgamated plates being got at. These are released by knocking out the wedges, and are placed on a light tray, duplicate plates which have been dressed being substituted. The barrel is then ready for another charge. From the discharge casing the pulp passes by a launder to one of the percolation vats, each of these vats taking the 24 hours' output of the whole of the barrels, and the ore is subjected to a complete percolation treatment in them.

From the above description it will be seen that the process is, in the main, the ordinary cyanide percolation process, the distinguishing feature being that the ore is subjected to a short preliminary agitation with the view of securing the amalgamation of as much of the gold as possible, and then raising the extraction. This method, with its consequent great economy of power, is rendered possible by the effective action of the plates. The ore receives a minimum of handling; much labour is saved, and there is consequent economy in cost of treatment. It permits of a more compact mill, the whole of the extraction being effected under one roof, and the superintendence required is, therefore, less. The wear and tear of plant will compare favourably with present practice, and the clean-up is both convenient and simple. The amalgamated plates are placed on a suitable tray, scraped in the customary manner, and then dressed, when they are again ready for the barrels. As may be convenient, the extractor-boxes are cleaned fortnightly, or monthly, as may be.

The ore being treated direct, there is no possibility of the development of acidity in it by atmospheric agencies. Special attention is called to the length of the percolation treatment to which the ore is subjected after being in the barrel, and the effect that it must necessarily have on the percentage extraction. With ordinary gold ores a yield of 90 per cent. of their assay value might be looked for, a percentage which is seldom reached by the most elaborate amalgamation plant. In order that the ore may remain under the cyanide solution as long as possible, the filtering of the washes should be expedited by an exhaust apparatus, which may take the form of either an ejector or small pump. Another feature of this plant is that it may be run as an ordinary percolation plant independent of the barrels, the vats having a capacity suitable for treating 100 tons of ore per day by this method. This point will commend itself to the management of those mines where stocks of

* From a paper read before the Federated Institution of Mining Engineers.

tailings already exist, and where batches of ore suitable for simple cyanide treatment are found.

On the Witwatersrand gold fields, where the mining and treatment of gold ore is being carried out on an enormous scale, the present approved practice consists of three stages, (a) the stamp mill with amalgamation, (b) cyanidation of clean ore, and (c) treatment of slimes. With the MacArthur process, and (d) treatment of slimes. With the MacArthur process, the same result can now be attained with one plant. The new process also has the advantage in costs. For plant, the initial cost of the proposed plant, complete with crushing machinery, would be less than the complete cost of a stamp battery, cyanide plant, and slimes plant. The running expenses would vary according to the conditions. Under some circumstances they would approach those of the present practice, but in many cases they would be much less. This estimate is made without taking into consideration the considerable economy effected in water.

GOLD IN CHILE.

By B. BECKER, C.E.

(Continued from page 1287.)

Auriferous Deposits.

GOLD is both found in alluvial deposits and in veins. Alluvial deposits are always met where vein deposits are near, although in some instances in the provinces of Carelmapu and Chiloé, it is found mixed with fine sands of titanite iron on the beach of the ocean. The only veins where this could have been derived from are in the distant Cordillera. The same is said to happen in "Tierra del Fuego" Ireland.

In the two northern zones placer mining has supplied mostly the fabulous treasures of former centuries, and it still is carried on, on a small scale, where water is obtainable. That the placers have been of enormous importance may be seen from the fact that, according to the best available information, the total gold production of Chile hitherto amounted to close upon £100,000,000 sterling, of which the 3-4ths have been derived from the placer mining; no doubt a "respectable" figure. Most of the alluvial deposits being near vein groups I omit mentioning them separately.

Veins.

As in most of the other gold-producing countries, also in Chile, the "gold" veins are found in primary rocks; and, as equally happens in other countries, also here single veins are unknown. They mostly occur in groups, and several groups then form a "gold field."

Commencing in the north, the under-named are the principal known and worked fields:—

The Antopagasta Gold Field ..	San Cristobal Group Guanaco Group Pastos Largos Group Jesus Maria Group
The Atacama Gold Field ..	Cachiyuyo Group Inca Group El Torno Group El Toro Group Sta. Gracia Group Elqui Group Andacollo Group
The Coquimbo Gold Field ..	Talca de Barraza Group Caron Group El Altar Group Punitaqui Group Illapel Group
The Potosi Gold Field ..	El Bronce Viejo Group Los Tornos Group Tittil Group
The Central Gold Field ..	Melipilla Group Alhué Group Talca Group
The Southern Gold Field ..	Pocillas Group

History mentions still the fields of Calacoya, Imperial, Calocino, Rolomo, Tucapel, and Angol; they were, however, lost ever since the insurrection of the Araucanians, and have never been found again.

With the exception of the Guanaco group, all the others consist of vein mines; this, however, consists of an eruptive outburst of mostly trachite, and the gold is found not only in the vein matter, but is more or less distributed over the surrounding country rock to a considerable distance of the veins. These veins are reported not to continue in depth. A near future must prove whether this is the case with all of them.

The richest and vastest field, no doubt, is the Coquimbo gold field; this province of Chile has also been, and still is, the richest in other minerals—silver, copper, and manganese. A closer description of the mineral deposits of this province will follow in a separate article, as it is not the purpose of the present one to describe other minerals than those of gold.

The veins are of two classes: Quartz veins and composite veins.

The quartz veins are comparatively rare; they have mostly been found not to go down to great depths; however, if they are found to do so, then it generally is due to their stronger mineralization in depth. However, as far as my knowledge goes, quartz veins have up to date not been worked to greater depth than 40 to 50 metres, 150 to 200 feet, and at such depth they generally become pyritic, the reason why hitherto their exploitation generally has been dropped is through lack of knowledge and means to treat such ore to advantage. Down to the underground water level these veins are generally worked out for their free gold, as a proof of former mining operations in this country.

The veins vary in width of from a few inches to 3 feet, but seldom more. There are, however, some measuring up to 6 feet and more. The narrow veins generally are richer than the wider ones, and such veinlets of a few inches are often found to yield 10 and more ounces of gold to the ton. The gold generally then is coarse gold. Conglomerates such as the South African have not been found, although a gold-bearing breccia does occur.

The composite veins form by far the majority. The outcrop generally is a gossan honeycombed by leached pyrite crystals, often still mixed with black oxide of iron or titanite iron.

The vein matter consists of either clayey quartzite, porphyry in a more or less decomposed condition, or in some, but rare, instances of Andesite. If with clay or decomposed feldspathic matter, the pyrites is generally more compact; with porphyry and Andesite it occurs mostly crystal laced or crystalline. Such composite veins are sometimes very powerful, up to 20 feet and more wide, while the average width may be about 4 feet. With the pyrites they often contain oxide of iron and sulphide of copper, and in some isolated instances also sulphide of zinc. Baryta and titanite iron are also, but less frequently, found as constituents of the vein matter. In many places the gold is coarse with the pyrites, and shows colours in the horn; in others, although ground through a 120 lineal mesh sieve, not a

trace can be detected in the horn, although by analysis it is found to assay an ounce or more.

The general strike is more or less south-east to north-west, and more rarely north to south. The dip is generally of from 50 to 70° to the horizon. Bedded veins have not come under my notice.

All the pyritic veins which have been worked have proved to go down in depth, at least those with well-defined walls. The same cannot be said of those with only one sharp wall; in such cases it has proved to be doubtful; however, they then often have proved to incline to pocket forming, or considerably widening in places. Anyhow depths of 400 feet and more have repeatedly been reached, and the veins been found to be gold-bearing, and to continue towards the depth. Although 400 feet is not a definitely proving figure, it is a figure permitting of not-too-much-risked suppositions. It anyhow warrants the safety of the necessary capital for working, if the extension of the vein horizontally is sufficiently proved, and if there are close by two or more well-defined parallel veins or dykes. The underground water level is generally reached in 100 to 150 feet.

In the neighbourhood of well-defined composite veins sometimes eruptive masses of Andesite and diabase cover the ground to great distances from the veins, and then mostly are found to be pyrites-bearing, with little or no gold.

Besides the already mentioned two classes of gold deposits, a third one of local importance may yet be mentioned. It is the gold-bearing silver ore as found in considerable quantities near Copiapo and Coquimbo. Extremely rich deposits of argentiferous galena and chlorides of silver have been found in both places, and both rich in gold. But this does not fall under the heading of this article.

Mining.

The alluvial deposits throughout Chile are now idle. I say idle, because I do not call "working" that almost everywhere single individuals every now and then take up a pan and wash gold to earn a scanty day's living, as they do in the famous Andacollo gold field, which from this source supplies about 2000 ounces of gold to the Santiago Mint.

"Hydraulic" is not possible for lack of water, and a suitable cheap dry process is not known. Nuggets of 1 kilogramme and more have been found; but, generally speaking, the time of placer mining in Chile has passed, or the revival has not yet come.

Vein mining is carried on with a little more interest. However, the country needs the necessary capital for working the numerous doubtless valuable deposits. Seven companies, mostly with English capital, are at work, but they have only commenced work lately, and the time for full development was too short.

Many small "trapiches," Chilean mills, are working in out-of-the-way valleys, and returns or results never get known.

Treatment of the Ore.

The ores, as above stated, are widely differing in character, according to the veins where they are derived from, and it, therefore, is a question of extreme importance before starting to work, to ascertain which mode of treatment best suits the present class of ore. Most of the existing companies are working on the free milling amalgamation plan, and where this is feasible it no doubt is the best. However, with the complex ores as now mostly are to be worked, this process gives too small returns, and as, generally speaking, no known gold extraction process, of course the "Total Gold Extraction Process" excepted, applied alone will give a scientifically sufficiently high extraction. This is the more so, with these complex ores, although apparently simple they may be. Most of them under suitable conditions and with adequate appliances can, no doubt, satisfactorily be treated by combined cyanide and amalgamation, but most of them fresh from the mines are so "cyanic" as to require a preceding treatment unavoidable, and if much copper be present, as often is the case, then electrical precipitation is by far to be preferred to zinc precipitation. In a later article I may come back on this point.

Dry crushing is applied almost generally, Grusonwerk ball mills being mostly prevailing. Dozens of them are in use and are reported to do good work. And although there are a few out-of-date stamps they may better be ignored.

Most of the ore being pyritic and assaying from 8 dwts. up to 2 or 3 ounces per ton (richer ore is rarely met with), there is a great field here for dry concentration.

The water from the mines in many cases is acid and often copper bearing, and, therefore, soon destroys the pumps. Either wooden or caoutchouc pumps should be provided.

Mining can in many instances, nay, almost in all instances, be effected by tunnel driving, although often at a high first cost for the main adit, but then both water and ore raising can be effected cheaply.

In the central zone sufficient water for all the known extraction processes can be mostly found near by, or by well sinking, but should wet crushing and wet concentration be applied, then the necessary water supply has to be brought down from the Cordillera springs and rivers. In Chile the burning question is, as in so many other far-off countries, capital. Ore exists in immense quantities. Almost all the ores, even such of the most complex character, when properly treated and rich enough, can be profitably extracted—viz., reduced by cyanide in combination with one of the known other systems, pan amalgamation, or smelting or chlorination; but it is absolutely necessary before setting to work to find out all the requirements of the best ore treatment, and any oversight in this line will be found often difficult to be mended later on.

General Remarks.

As stated above, water in the two northern zones is often scarce, although it would not be difficult to find good and abundant springs near the Cordillera, and suitable for generating as well as a convenient power supply. Such could then by electricity easily be transmitted to the place of demand. However, in cases where the water is very scarce, and such means of power supply for lack of means not applicable, it is a good plan to apply oil or gas engines. And the latter seems and is in most cases the cheaper one of the two, when using the Dawson gas generator. The gas power plant has further on the advantage, that engines of this type are manufactured up to 200 or 300 horse-power, while the most powerful oil engines that I know of are compound 60 horse-power engines. Gas engines, however, have the disadvantage that the first cost of the plant, including the gas generator, is not inconsiderably higher. The question consists in a comparison of the cost of freight of fuel. Large oil engines are supposed to consume less than 1 litre of paraffin, and Dawson gas engines less than 7-10 kilogrammes of anthracite per horse-power per hour. And while the average cost of 1 litre of paraffin, all duties paid, is about 0.2 shilling, the cost of 1 kilogramme of anthracite under the same conditions is about 0.04 shilling, or 0.09 shilling, viz., 0.03 shilling respectively per horse-power per hour. Heavy freights up-country, however, tend to equalise these figures more and more. Both systems have in common the advantage that they gratuitously supply great quantities of hot water (the cooling water), which often is of great importance to the success of the process used.

The reader may kindly excuse this diversion from the original theme of this article. I thought it, however, of sufficient importance to point out the two rival systems, with their respective merits, for countries where water is scarce.

Labour, as already stated, is cheap in Chile. An average miner will bore 80 to 100 inches per day in rock of the consistency of medium hard limestone or feldspar. In hard and tough rock comparatively less. Every practical miner will know thereby, more or less, what class of labour the Chilean miner supplies. For readers not conversant with this mode of reckoning I may state that it comes equal in the above-named materials to about 10 to 12 cwt. of rock per man per day in veins of some 3 feet wide. This figure, of course, varies widely according to local conditions. However, in addition to the statement of wages paid, it enables the expert to compute the cost of raising 1 ton of ore, at least, approximately, as the figures are only approximate ones. Chile certainly is a rising country and possesses immense mineral resources, and there can be no doubt that with an enlightened Government it has a good future standing ahead of it.

MULE TRANSPORT IN SOUTH AMERICA.

By Captain O. C. LONGRIDGE, M.F.I.M.E., A.I.C.E., &c.

IN many cases mining and commerce in South America have to depend largely on mule or donkey transport. Fortunately, both kinds of animals are usually plentiful, and the charges cannot be called high. A calculation recently made by the writer will illustrate the average cost per ton-mile. In the case in question 50 tons of ore per day had to be transported 120 miles over a rough and mountainous track in one of the Northern provinces. The figures were worked out for three systems. In the first case, it was found that, let out by contract, the carriage would cost, roughly, 5 pesos, or 8s. 8d. per ton—that is 4.93d. per ton-mile. A mixed system, however, might be adopted. In this method the employer would buy the mules, which would then be handed over to the driver, repayment being effected by a reduction in freight until the purchase-money was repaid, plus 10 per cent. to 15 per cent. interest on the employer's capital outlay. Under this system, sometimes employed in the country, the costs of transport per ton-mile would be reduced (say) 10 per cent. But there is yet another method that might be used, namely, a proprietary system. By this plan the employer would own and work his own mules. On the ground of humanity this method, so far unused in this country, has evident advantages. The Spanish saying, "La mula vive tan solo 25 años teniendo la esperanza de comerse al amo," briefly expresses the feeling, or, rather, lack of feeling shown towards transport animals in South America. Considering the precarious character and wretched condition of many of the northern tracks, the load carried by the mules, on cumbersome ill-fitting packs, is undoubtedly heavy. Food is given only once a day at a cost of 10 cents, or 1½d.; and in many cases, where alfalfa is scarce, the amount that the mule receives or is able to pick up after a hard day's work is very much curtailed. It is, in fact, considered cheaper to work a mule to premature death on short rations and rebuy, than to feed it on proper and sufficient food. Cold shoeing is performed once in two months without any regard as to whether the shoes fit or not. Under these circumstances, mules, after completing three journeys, have to be given one month's rest before they are physically capable of further work. The average life of the animal in these conditions may be taken as eight years, and the numerous skeletons lining the tracks show the heavy mortality that takes place. The management of the transport by a proprietor should entirely remove the hardships now endured by these beasts of burden. It would be possible to establish proper forage depots, replenished partly from local supplies, and partly from food brought by the mules on their return journey. Proper feeding and watering under the proprietor's control would be ensured. Hot shoeing could be performed in an efficient manner; and, well fed and shod, there is no reason why the mules should not be continuously at work. Thus 25 per cent. in lieu of 50 per cent. would more than cover the number of spare animals required to take the place of those temporarily incapacitated for work. A proprietor's ownership of the mules would have a further advantage. Some sections of a mountainous track are exceedingly arduous, while other portions are comparatively light. Under any system but the proprietary, the same mules complete the whole journey, whilst under this system it would be possible to select and retain the strongest mules for the heaviest part of the journey, and thus avoid overtaxing the strength and endurance of the weaker animals.

The costs of mule transport under a proprietary system work out as follows:—The load being 300 lbs., the number of mules

required per ton is $\frac{2240}{300} = 7.4$. Taking the time employed

per double journey as nine days, the total number of mules required is 7.4 by 50 by 9 equal 3330; add 25 per cent. for contingencies, and the total number of mules for the establishment becomes 4160, say 4200, of which the purchase price, including equipment, would be (say) £3 15s. per mule, or £15,750.

Drivers, including depot attendants, will be covered by an allowance of one man per 10 mules, or 420 men, of which the wages would be 17.50 pesos, or 23s. per man per month. Allow 14 conductors and depot overseers at 30 pesos, or 40s. per man per month, and add an additional 5 cents forage per mule per day, with 3 pesos per mule per two months for removing and shoeing, the annual working costs will be:—

4200 mules, feeding for 365 days at 15 cents per day ..	£15,330
420 drivers at 23s. per month	5,796
14 conductors at 40s. per month	336
Shoeing, &c.	5,040
Rent of depots	25
Interest 5 per cent., and redemption in eight years of capital outlay, £15,750	2,756

This distributed over a tonnage of 50 tons per day for 290 working days, or 14,500 tons, represents a cost of 4d. per ton mile, and shows a saving of 9s. 1d. per ton for the whole distance of 120 miles. The system has, however, the disadvantage of needing a large initial capital outlay.

In most cases it will, probably, be found better to employ a contract system, subject to the contractor accepting such conditions as will ensure proper feeding and care of the mules, and detention, at the contractor's expense, of any animals found unfit to travel. Some such regulations are necessary on the ground of bare humanity, and where regular employment is offered on a large scale, there should be no difficulty in finding contractors ready to accept conditions that, in the long run, effect economy.

COAL FOUND IN IRELAND.—Boring operations carried out recently on the property of Mr. Chambers, J.P., at Killylack Gleve, Dungannon, have had successful results, a seam of coal 28 inches thick being discovered at a depth of 20 yards. The coal is of good quality, and should be easily worked, owing to its proximity to the surface.

* See "Fracture I, San Roman, Minería I M. S. L. en Chile," which has been repeatedly been consulted.

THE ELECTROLYTIC DESILVERISATION OF ARGENTIFEROUS LEAD BY THE TOMMASI PROCESS.

(Communicated by the Inventor, Dr. D. Tommasi.)

THE principle upon which this process is based consists in electrolyzing a solution of a lead salt that shall not only possess an exceedingly feeble electrical resistance, but shall also not give rise to the formation of any peroxide of lead* (PbO₂), employing as anode the silver-bearing alloy to be treated, and as cathode a metallic disc not affected by the bath, and which is to be made to rotate during the operation.

Under the action of the current the lead of the anode dissolves, and is transferred to the disc that forms the cathode in the form of spongy crystals of lead, whilst the whole of the silver contained in the lead, being insoluble in the bath, is thrown down on the bottom of the containing vessel, where it is collected in a receiver with perforated bottom.

The apparatus by means of which the lead and silver are separated from their alloy, or the electrolytic plant properly so-called, consists of the following parts:—

Containing Tank.—This consists of a rectangular wooden box, thickly coated with waterproof material.

Its dimensions are as follows:—

Length .. 3.20 metres, about 10 feet 6 inches.
Depth .. 1.60 .. " 5 " 3 "
Width .. 0.20 .. " 8 "

Cathode Disc.—This disc is made of aluminium bronze, and is 3 metres (10 feet) in diameter and 2 centimetres (0.8 inch) in thickness.

This disc is not entirely immersed in the bath, but only a segment of it, so that every part of the disc that dips into the bath is alternately exposed to the air and to the solution that forms the electrolyte. The portion of the disc that emerges from the solution is brought, as it revolves, between two scrapers in the shape of rakes, the object of which is not only to remove the deposit of lead as fast as it is formed, but also to depolarise the surface of the disc.

Anodes.—The two anodes are of argentiferous lead; each consists of two pieces, and each piece is in the shape of a quadrant. Each half anode is made of a radius of 75 centimetres (30 inches), and is 5 centimetres (2 inches) in thickness; each is pierced in its upper portion and towards its ends by holes 2 centimetres (0.8 inch) in diameter.

Electrolyte.—This consists of a solution of the double acetate of lead and sodium, or of lead and potassium, to which certain compounds are added, which the inventor desires to keep secret.

The series of operations to be pursued in the electrolytic extraction of silver from argentiferous lead is the following:—

The silver-bearing lead is melted and cast into moulds of the shape and dimensions previously indicated. The four half anodes are then suspended by means of four metal rods, which are disposed in the upper part of the bath. Each of these metallic rods is provided with endless screws and nuts, and to them are attached the conductors that connect electrically the four half anodes together, and the whole group with the positive pole of the dynamo. This arrangement enables the electrodes to be kept at a determinate distance apart, and admits of their being brought nearer together when this distance would otherwise become too great, owing to the gradual wearing away of the anodes.

The disc forming the cathode is placed midway between the anodes, and is connected with the negative pole of the dynamo by means of a metallic brush bearing against the spindle of the disc.

The plant being thus set up, the solution forming the bath is poured in, the circuit is closed, and the disc is caused to rotate with a speed of one to two revolutions per minute. As soon as the current passes, the lead commences to deposit on the disc in the form of small, spongy crystals. As soon as the deposit of lead has attained a sufficient thickness, and has, therefore, to be removed, the current is interrupted and the scrapers are drawn together. These scrapers thus rub against the faces of the disc and detach the lead, which falls into inclined troughs that open on to woven wire sieves. The lead thus delivered is first washed with distilled water, and then subjected to heavy pressure in a hydraulic press.

The liquid escaping from the hydraulic press is added to the wash water, and the whole is evaporated until its specific gravity reaches 30° Baumé; after it has cooled down, this solution is pumped back again into the electrolytic bath. The compressed lead is heated in a crucible with 2 to 3 per cent. of charcoal powder, and when melted is cast into pigs.

When the anodes are dissolved they can either be replaced by fresh ones, or else the silver that has settled at the bottom of the bath may be withdrawn. In the latter case the disc is lifted out by a hoist, then the perforated receiver, which had been placed at the bottom of the tank at the commencement of the operation, and which contains the whole of the silver liberated from the argentiferous lead of the anodes, is taken out. The silver is collected, washed, dried, and melted in a crucible with nitrate of soda and a little borax, and cast into ingots.

The numerous advantages presented by the Tommasi electrolytic system, as applied to the desilverisation of argentiferous lead, may be enumerated as follows:—

1. Polarisation is completely avoided,
(a) By the rotation of the disc that constitutes the cathode.
(b) By the intermittent friction of the scrapers against the opposite faces of the disc, an operation that promotes the escape of the hydrogen.

2. The lead that is deposited on the disc is continually being removed as fast as it is deposited, from which the following advantages result:—

(a) The lead, being continually withdrawn from the oxidising action of the solution in the bath, is no longer liable to be attacked by it, consequently the production is avoided of local couples, the current of which would travel in the opposite direction to that of the main current.

(b) The electrical resistance of the bath is considerably diminished, since the anodes can be brought as close as possible to the cathode without there being any risk of short circuits

forming between them, these latter being always injurious in any electrolytic decomposition.

(c) A considerable economy is obtained in the consumption of the electric current, due to the diminution of the resistance of the bath, owing to the electrodes being situated as close together as possible.

3. The density of the various layers of liquid traversed by the electric current is everywhere the same, owing to the rotation of the disc, which keeps them in motion and continuously mixes them; the liquid is consequently prevented from becoming saturated at the bottom and diluted in the upper portions of the bath, as always happens in ordinary electrolyzers in which the liquid is undisturbed.

Working Cost of Electrolytic Desilverisation.

As the result of a large number of experiments, Dr. D. Tommasi has found that the cost of electrolytic desilverisation of lead, everything included, was at this outside 8 to 10 francs per metric ton of 1000 kilogrammes (6.61 to 8.81 per metric ton of 2204 lbs.).

The cost of desilverisation by the chemical methods now generally in use may be estimated at least 30 to 50 francs per ton, whence it appears that by employing the Tommasi process, a saving of at least 20 francs (16s.) per metric ton would be realised.

The production of argentiferous lead in the principal countries of the world may be estimated as shown in the subjoined table:—

	Annual Production of Argentiferous lead.	Profit obtainable by the Tommasi process.	
		Francs.	£
Spain ..	188,000 ..	3,760,000 ..	150,400
United States ..	154,000 ..	3,080,000 ..	123,200
Germany ..	101,000 ..	2,020,000 ..	80,800
England ..	69,000 ..	1,380,000 ..	55,200
France ..	55,000 ..	1,100,000 ..	44,000

For the works of the whole world the annual profit would amount to:—

630,000 t x 20 francs = 12,600,000 francs = £504,000

If water power were available the cost per ton of lead would only amount to 5 francs, and the profit in that case would be:—

	Francs.	£
Spain ..	4,700,000 ..	188,000
United States ..	3,850,000 ..	154,000
Germany ..	2,525,000 ..	101,000
England ..	1,735,000 ..	69,400
France ..	1,375,000 ..	55,000

Hence for the output of all the works in the world the profit would be:—

15,750,000 francs = £630,000.

The Tommasi process is also capable of producing very cheaply, and in a condition of very great purity, spongy lead for use in accumulators,* and white lead. Spongy lead prepared by the Tommasi process would cost 260 francs (£10 8s.) per ton, whilst prepared by ordinary methods it comes to 1355 francs (£54 4s.) per ton. The economy thus realised would, therefore, be 1095 francs (£43 16s.) per ton.

White lead is worth at present 430 to 500 francs (£17s. 4s. to £20) per ton; if prepared by the Tommasi process its cost would not exceed 230 francs (£9 4s.) per ton, and the profit realised would be at least 200 francs (£8) per ton.

Such is, in brief, the new process to which Dr. D. Tommasi has devoted over two years of study. The process in its entirety is quite novel, and cannot fail to attract the attention of those especially interested.

* Lead in this form constitutes an excellent and active substance for accumulators of every system, and especially for those on the Tommasi system (the so-called Fulmen accumulators).

† The price of lead is taken at 250 francs (£10) per ton.

MEETINGS OF MINING COMPANIES.

BRITISH GUIANA PROSPECTING AND GENERAL DEVELOPMENT COMPANY, LIMITED.

THE second ordinary general meeting of the British Guiana Prospecting and General Development Company (Limited) was held at the registered offices of the company, Throgmorton House, London, E.C., on Thursday last week, the Hon. J. H. H. BERKELEY presiding.

The SECRETARY (Mr. A. C. Adamson) having read the notice convening the meeting, the minutes of the previous general meeting were read and confirmed. The audited statement of accounts was submitted to the meeting, showing that after the payment of an interim dividend at the rate of 25 per cent. there was a balance of £2239 16s. 7d. profit to the credit of the company on the year's working.

The CHAIRMAN, after going through and explaining each item in the accounts said: When we last had the pleasure of meeting you, on July 25, 1895 (the date of our statutory meeting) I was able to announce to you that we had successfully floated the Sir Walter Raleigh Mining Company (Limited), which was our first venture, and I made mention that we were in hopes of bringing out within reasonable time several other companies for claims in which we were interested, and which we believed to be equally valuable, and on which we expected to make considerable profit. But, unfortunately, shortly afterwards everyone was startled by the very acute phase which was reached in the dispute between British Guiana and Venezuela about the boundary, and, as you are aware, that dispute has been going on, and still continues unsettled; so we did not consider it was advisable to offer any more companies in British Guiana to the public until something more definite could be known of what was likely to be the result. With regard to the Sir Walter Raleigh Mining Company (Limited), it unfortunately happened that the machinery which was sent out by its directors at the end of last year was delayed for many months in delivery at the mine, owing to an unprecedented drought in British Guiana. There has not been such a drought for over 30 years, and the Barima River, which is usually navigable for punts with a draught of about 12 feet, was quite unnavigable for many months. I am pleased, however, to be able to tell you that the machinery has now been delivered at the site of the mill, and its erection is advancing towards completion. A tramway has been laid from the landing stage to the mill, and from a telegram received from the manager on the 6th inst., the directors learn he expects to be ready for crushing about January 15, and there is every reason to believe that the result of the first crushing will be satisfactory. We hold a very large block of these Sir Walter Raleigh Mining Company shares fully paid, and they ought, and I believe will, form a very valuable asset for us. An outside opinion of the probable value of this mine may be interesting to you. The following is a quotation from a New York paper—the *Engineering and Mining Journal*—which, I believe, is the leading American authority on mining matters. In its issue of August 22 it says:—"The Sir Walter Raleigh Mining Company (Limited) is an English company, and is located on some of the best ground in the Barima, and I see no reason why it should not be a big dividend-paying concern later." (Applause.) It will, no doubt, be of great interest to you to know that the Barima Gold Mining Company, situated between two of the blocks in which we are interested—viz., the Winter Claims and the Bartley Claims, of about

90 acres each—has commenced crushing, and the results have so far been satisfactory. There have been three crushings, giving an aggregate of 2337 ounces from 2290 tons. The shares of that company have since the crushing been up as high as £4, and I invite your attention to this mine particularly, because of its position, as from work which we have done upon them, it is absolutely proved that the reefs (and especially Reef C, the richest reef) on the Barima Gold Mining Company do run through the Winter Claims and the Bartley Claims. About this Barima Gold Mining Company, I again quote from the *Engineering and Mining Journal*:—"The Barima Gold Mining Company, if handled properly, mining world. I have had the opinion of practical men who have visited the colony, and they all have expressed their wonder at what is seen on every hand." The work on the Winter and Bartley Claims has been done under the superintendence of Mr. Connolly, who has been on them for the past 10 months, his formation, and I am glad to tell you, having arrived a few days ago from British Guiana, he is now in this room and will give us some information later to-day. We have had several reports on the Winter/Syndicate Claims, and they all agree that they are very rich, more so than the Barima Mine. Mr. Connolly says:—"The property is bounded on the north-east by the celebrated Barima Gold Mining Company, peg for peg, and is so situated that all the reefs at present discovered in that company's property must pass through it; in fact, these reefs have already been discovered, including Reef C, which has yielded such phenomenally rich quartz. This reef has been traced by the Barima Company to within a few feet of the boundary line of the Winter Syndicate." Mr. Connolly also says:—"All things considered—situation (valuable reefs having been discovered on both sides of this property), accessibility, area, wood, water, rich deposits, and reef—I have no hesitation in saying that the Winter Syndicate is the pick of the properties on the Arakaka Creek, or, in fact, the north-west district." Mr. Settle, manager of the Sir Walter Raleigh Mining Company (Limited), and late general manager to the Albion Transvaal Gold Mines (Limited) says:—"Reef C is the main or principal reef on the property. It is exposed by several open cuttings, has been traced for some distance near to the boundary dividing the Barima Gold Mining Company and this property, and measures from 4 to 10 inches wide. In my opinion, this is one and the same reef as the Barima Company is now working." I now quote from a private letter, dated September 1:—"During a visit to the north-western district of the colony, in company with Sir A. Hemming, I had an opportunity of visiting the mining claims known as the Winter Syndicate. I was shown over the property by Mr. Connolly, and saw the excellent work he had done in the way of developing it. I was very much impressed with its evident richness, and I think you are to be highly congratulated on having secured so valuable a property." We propose to form a company at once to acquire and work these claims. We are offered considerable assistance in its formation by others who have been carefully watching the progress of events in British Guiana, and who have satisfied themselves of the richness of the north-west district generally, and of the Winter Claims in particular. Our profit on the situation will be considerable, both in cash and shares. (Applause.) We have done a very large amount of work on these claims, and have thoroughly proved their value. For these claims and those of the Sir Walter Raleigh Mining Company (Limited) we have "perpetual grants" from the Government; and I would remind you that these are very different from ordinary mining leases. Grants have also been obtained for the 19 claims north-east of the Sir Walter Raleigh Mining Company (Limited), 11 claims south-west, and we expect by the next mail grant for 16 claims more adjoining. On many of these claims we have done a considerable amount of work in the way of proving the reefs on them. We have also done good work on the Bartley Syndicate of six claims. I would remind you that each claim is 1500 feet by 500 feet, or nearly 18 acres, and you will, therefore, know the extent of our interest in the north-west. A Bill for the construction of a railway from the Kaituma River to the Barima has recently passed the British Guiana Court of Policy. This railway, when completed, will much facilitate transport to the claims we are interested in. Then we have taken an interest in a very large block of claims on the Conawarook, a tributary of the Essequibo River, known as Garnett's claims. They comprise 10 placer claims of 50 acres each, and 18 placer claims and 15 mining claims of 15,000 feet by 500 feet each. From these claims there have already been taken 60,000 ounces of gold, and they are now being actively worked, and the vendors allege that they are getting about 800 ounces monthly, and this by primitive methods. On these claims, Mr. C. E. Clarke, a well-known American mining expert, writing to the *Engineering and Mining Journal* of July 11, says:—"No attempts have been made to prospect for mineral except near the Minnehaha Placers in the Potara district (which lies about in the centre of the colony) owned by Mr. G. Garnett, a prominent shipping merchant in Demerara, and one or two working associates, who have paid Government tax on over 60,000 ounces of gold from those placers since 1890. Mr. Garnett told me, as I was leaving Demerara, that some miners whom he had sent out to tunnel for quartz on a promising location, had just sent down samples of rich free milling ore. To me the evidences are substantial that the entire stretch of hill country for 400 miles is a gold mine." We are joined in this last venture by some eight other local mineral prospecting syndicates, and the property has lately been thoroughly examined under the auspices of the well known mining engineer, Mr. Arthur L. Pearce, of St. Mildred's-court, London, E.C. His expert has just returned to England from British Guiana, and I hoped to be able to refer to his report to-day, but it is not yet ready. I may, however, say that we have been informed verbally that it will be satisfactory. We shall control the issue of the company for acquiring these claims, and on its formation we shall derive considerable profit. (Applause.) The same expert was also instructed to examine and report upon another block of claims we are interested in on the Conawarook, also a tributary of the Essequibo, and that report will no doubt be in our hands in a few days. The mining journal already quoted from speaks of the Conawarook as follows:—"Conawarook River (No. 2 district) is about the least known among the gold-producing rivers, but its output is equal to any of the others. It was in this river, some years ago, that a Mr. Lachie, in the employ of the Sproston Dock and Foundry Company, found a large piece of gold and quartz, weighing 40 lbs., about 5 per cent. of which was quartz. We are constantly having other properties offered to us, but probably you will tell us that we have in hand at present sufficient to occupy our full attention and to make our shares very valuable. (Hear, hear.) We will remember that at our statutory meeting I told you we had offers to place 40,000 shares, then unissued, on very advantageous terms, and no doubt these would have been taken had not the Venezuelan dispute taken the shape it did; the option we then gave ran off and we have not renewed it. We have been content to go on quietly proving the various claims, feeling confident that when the real value of the properties we are dealing with is known, the fact of there being some dispute about the boundary will, in itself, will not deter investors from desiring to acquire an interest in them. Investors may prefer to hold shares in mines in the British colony, but, as you will know from the large amount of capital invested in the South African Republic alone, speculators are deterred from investing in mines in foreign countries provided they are satisfied of the richness of the gold in the country. I venture to predict that in any settlement that may be arrived at with Venezuela none of the claims in which we are interested will be alienated from the British Guiana; and, further, that before many months are over the investing public will have learnt, what some of us already know, that British Guiana is certainly as rich in gold as any part of the world, and they will understand the desirability of acquiring shares in a parent company like the British Guiana Prospecting and General Development Company (Limited), which still has some £10,000 for working capital, and possesses the enormous inheritance

THE CHAIRMAN said : Gentlemen.—It affords me and my colleagues a great deal of pleasure to meet you here to-day. In order to save time you will, I presume, in the usual way, agree to take the manager's report and statement of accounts as read. I am sorry to see so small an attendance here to-day, but I take it as somewhat of a compliment to your directors and the management. It seems to show that the shareholders as a body are satisfied with the account which we have to place before them. I may say, furthermore, that I have received several letters from shareholders—and large shareholders—congratulating the directors and management upon the improved state of affairs. We have the pleasure to-day of seeing Captain Paull present amongst us, and I am sure you will all be very pleased to make his acquaintance. Ever since he has been at the mines he has given the directors—as I hope he has given the shareholders—every satisfaction. When he was appointed I referred to the knowledge which I had had for many years of Captain Paull and his family. I then said that if we could only get him appointed as manager of Leadhills we should be perfectly safe in his hands, and I may now add that, not only as the years pass, but month after month, and week by week, he has proved to the satisfaction of the directors that in the position he holds at Leadhills as the local manager, he is doing everything he possibly can, morning, noon, and night, to promote the welfare and interests of this company. It is in a great measure due to him that we are here to-day, holding so vastly improved a position. We have also here to-day, I am pleased to see, our excellent agent, Mr. Smith, of the firm of William Muir and Co., of Leith. From the commencement of the company he has had the sale of our lead at, comparatively speaking, a small commission, and he does his very best in the interests and for the welfare of this company. He belongs to a firm well known and highly respected in Scotland. Mr. Muir was a director of the North British Railway, holding a very high position in Scotland, and we are very fortunate in having Mr. Smith as our agent, and in having him here to-day. Both Captain Paull and Mr. Smith will be able to address you, not only in regard to the position of the mine, but also in reference to the lead trade. Now, you will see by the report of the directors that we show a profit of £4800 5s. 11d. for the 12 months ending June last. I may tell you that we have sold to realise that position no less than 2240 tons of pig lead. Now, it is in reference to these two items that we are in so favourable a position. I objected personally—and my colleague endorsed that objection—to sell any very large quantities of lead at something like £8 15s. or £9 per ton. We, therefore, held on as long as we could with the available capital that we had, and by so doing, instead of getting so low a price as that, we have sold our stock of lead up to June 30 at a price of £11 5s. 24. It is easily calculated how this profit arose, and I hope you will consider that it was due to the good management of your board. I am, of course, aware, as I stated six months ago, that if the price of lead had gone down you would have had, perhaps, just cause for censuring our speculations in lead; but you must put some confidence in your directors, who have some knowledge of the lead trade. I, myself, have an experience of over 40 years in connection with that trade. Looking at what the Broken Hills were doing, and the falling off in their produce, we felt that we were to some extent justified in holding on, and I think you will agree that

we have acted wisely in doing so. The price to-day I may say is about the same as or, perhaps, a shade better than what we have realised during the past 12 months. We have suffered somewhat, so far as the mine is concerned, as other mines have done, in consequence of the drought a few months ago. In England and Scotland we experienced last summer a drought of three or four months. Since September we have had an enormous fall of rain, and our reservoirs are now, fortunately, full. This is hardly to be wondered at, considering the rain we have had and the 4 inches of snow which fell in Scotland yesterday. I mention this because our mine has been during the last few months inundated with water. We are gradually getting it out, and I hope it will quite disappear during the next two months. Owing to this we have not had any return from the bottom of the mine for some time, but when the water is out we hope they will be recommenced, and they will help us very considerably. Now, a good many of our ends are, comparatively speaking, poor; but "nothing venture, nothing have," and we must continue to drive our various levels in the hope of making discoveries. We are now doing a very large amount of exploratory work. During the last few months we have set to work energetically crosscutting at the various levels, and we hope shortly to meet with some important discoveries. These crosscuts will, of course, take time to develop, but Captain Pauli will probably tell you that we have very good prospects of making some important discoveries. As to our financial position, as revealed in the balance-sheet submitted to-day, I may say I do not believe there is a mining company in the home district—either tin, copper, or lead—that holds as sound a financial position as we do at the present time. For instance, we may almost say that we have between £90,000 and £100,000 in liquid assets. We have £412 in investments, and we have in current assets £7327. On the other side we have against sundry credits—practically our only liabilities—£1285. (Hear, hear.) I think, gentlemen, that your directors and management generally are to be congratulated upon this result. It has given us a great deal of anxiety for a number of years to arrive at the position which we now occupy, and I may mention that this is an exceptional concern. I do not know another purely lead mine in the country. Our neighbours get silver; but we do not get in for silver extracting, as we do not find that it pays. I do not, in fact, know another concern in the country where a financial position can be shown such as ours. Nearly 95 per cent. of the lead mines have stopped working, owing to the low price of lead. When we started this concern, 20 years ago, we had the price of lead at £22 and £23 per ton; and, as you know, it kept falling pound by pound until we got down to £8 15s. or £9 per ton. No wonder, then, that nearly all the mines have had to shut down. So far as our future is concerned, all will depend upon the price of lead and on the future discoveries which are made in the mine. It is useless to predict what those discoveries will be—we cannot see into the ground—nor can I well prophesy as to the future of the lead market. I do not, however, think that the price of lead will be much lower than at present, if it is lower at all. My own personal feeling is that in the course of a year or two we shall see a very good rise. So far as the mine is concerned, Captain Pauli will tell you the present position. It is stated in the report at the conclusion that "we shall have the pleasure of announcing a further dividend at the meeting." Twelve months ago we gave you 1s. a share, and six months ago we gave you 1s. 6d. Well, the question is whether we cannot increase this amount a little, and, of course, we must take care in this connection to keep sufficient in hand to prosecute the exploratory works in a vigorous manner. I hope that we shall succeed in doing this to the satisfaction of Lord Hopetoun and his advisers. I wish to hope that his lordship's adviser would be here to-day, but I see that he has not been able to be present. We have carefully considered the question of dividend, and we have been unanimous in recommending a dividend of 2s. 6d. per share. (Applause.) Mr. Southgate, our largest shareholder, is signing the cheques now, and the secretary tells me he hopes to send them out to-night. If any gentlemen have any questions to ask, I shall endeavour to answer them to the best of my ability, and in the meantime I beg to move the adoption of the directors' report and statement of accounts, and the manager's report.

Mr. THOMAS GLEN seconded the motion. Mr. WEST asked for further information in regard to certain items in the accounts, more especially in regard to the increase which had taken place in the amount for engineering, and the law costs. The SECRETARY said that the augmentation of the amount for engineering was mainly due to the fact that 20 per cent. instead of 10 per cent. had been written off the permanent works, and charged to revenue. The incidental charges mainly consisted of the alterations which had been made for the manager's house at Leadhills. The law costs were incurred over an appeal which had been lodged against the assessment for the income tax. The appeal went against the company, but they had succeeded in getting a considerable reduction in the assessment which gave them a gain of £80 when the law charges had been provided for. (Hear, hear.)

The CHAIRMAN said he might inform the shareholders of Leadhills that a movement was afoot in order to induce the Caledonian Railway to provide a branch line to the property. Some 14 or 15 years ago they had the engineer and traffic manager to the railway up at Leadhills going into the matter, but the time was not then considered ripe for the construction of a line from the Caledonian system. When he (the Chairman) was last at the mine a memorial was got up for presentation to the directors of the Caledonian railway, which was presented on the previous day at Glasgow. A thought he himself had been unable to be present, he wrote to the general manager, while Captain Pauli and Mr. Smith attended, and did the company a good service on the occasion. The Member of Parliament for that part of Lanarkshire and Lord Hopetoun's representative were not there. Matters were gone into before Mr. Thompson, the general manager, and the directors of the railway; the proposals were very favourably received, and on certain conditions it was anticipated that the railway would be built. The railway would be of great service to the inhabitants of Leadhills and also to the company. The matter was now being energetically pushed forward, and they hoped some arrangement would be finally decided upon. The Chairman then passed on to refer to the passage in Captain Pauli's report, in which he described the steps which were being taken with the view to obtaining gold from the Leadhills Mine as follows:—"In new ground on Lowther range of hills we have, by coster, pit, traced N. 1 quartz vein down the hill northwards some 130 fathoms, which is of a strong character, varying in width from 20 to 30 feet, and we have recently driven an adit level southwards 30 feet, where it reached the vein. We have cut into it some 9 feet, and I propose driving the level through it, and then on a line same on its course into the hill, which rises rapidly. This vein contains strong spots of iron and copper pyrites with occasional spots of lead and blende, and from its appearance may be expected to become productive for mineral as depth is attained. No. 2 vein, some 200 fathoms to the north-west and lower down the hill, where opened upon at surface was found to be 10 feet wide, composed of lumpy quartz. An adit level has also been driven north-eastward on this vein about 9 fathoms, which contains spots of iron pyrites, gossan, &c., and we intend now crosscutting through it to ascertain its full width and character." As the shareholders were aware, Mr. Watson continued, in the past large quantities of gold have been found at Leadhills. There were records, going back to the time of Mary Queen of Scots, showing that £500,000 worth of gold had been won from Leadhills. The regalia in Edinburgh Castle was made of gold from Leadhills, as was also the wedding ring keeper of the Duchess of York. Gold was found in the streams of the district, and there could be no doubt that it came from veins on their property. Since Captain Pauli had been on the mine the work of searching for gold had been taken seriously in hand, and with the sanction of Lord Hopetoun they were now proposing to work any discoveries that might be made. The various levels must be extended to see whether they contained gold, and the directors

were strongly of opinion that something of importance might be found in the future. Lord Hopetoun would no doubt do all that he could to help the company in the matter by affording them every facility for carrying on their operations. (Hear, hear.) Some specimens of gold won and quartz taken from Leadhills were handed round among the shareholders.

The motion for the adoption of the report and accounts was then put and carried unanimously. Captain PAULI, in commenting upon his report, said that there was nothing new in the mine to notify since the half-yearly report, with the exception of the 51 fathom level, which was now worth 22 cwt. of lead per fathom. The various other stops and drives continued to be about the same. They were exploring in two on ten pits where two good quartz veins had been cut—four men working in one place and two in the other. The indications were very favourable for the production of gold. The mine generally was looking hopeful, and the future prospects were favourable.

A SHAREHOLDER: What condition are the smelting works in? Captain PAULI: They are in very good repair.

Mr. SMITH, speaking in reference to the lead market, said that the company, although almost the only people in Scotland who were actually producing lead, had not the control of the market for that metal. Large quantities of Spanish and American lead came into the market, and the lead they had would not be sufficient to supply the Scotch market for more than three or four weeks. Although the price of lead had lately been pretty firm in the London market, large quantities of the latter had been sold, and Scotch customers had been wise enough to buy in large quantities at the present price. His firm had been connected with the mine for 70 years, and they did their best to secure for the company a good price for their lead. As Mr. Watson had stated he was present on the previous day when the despatch waited on the directors of the Caledonian Railway in Glasgow, when the matter of the proposed railway was very fully gone into. There was little doubt that if the railway was built at all, as probably it would be, it would have to go by Elvanfoot. Lord Hopetoun had kindly consented to give a large part of the necessary ground, and there was every probability that the scheme would be successfully carried through.

On the motion of Mr. WEST, seconded by Mr. CURTIS, Mr. Ashmead was reappointed as the auditor of the company.

Mr. ASHMEAD thanked the shareholders for the honour they had done him by re-electing him as their auditor. He had held the post for the past 20 years. He also spoke of the admirable manner in which the books of the company were kept, and also the cost sheets which came down from the north.

The CHAIRMAN corroborated Mr. Ashmead, and especially mentioned the able manner in which Mr. George Menzies and his cousin kept the books at the mine.

Mr. WEST proposed a hearty vote of thanks to the Chairman, directors, and management both in London and at the mine for the successful manner in which they had controlled the affairs of the company. He sincerely hoped that at the next meeting there would be an equally satisfactory statement of affairs to present.

The CHAIRMAN, in returning thanks, said it was highly satisfactory that the company were able to carry out loyally the arrangement they had made with Lord Hopetoun to give him 10 per cent. on the product of the mines. They were going to considerable expense in opening up the mine, and he thought his lordship would be willing to meet them favourably in every way. The proceedings then terminated.

WEST KITTY MINE COMPANY.

The ordinary general meeting of the shareholders in the West Kitty Mine Company was held on Wednesday, at the offices of the company, 37, Walbrook, E.C., Mr. JOHN B. REYNOLDS presiding.

The SECRETARY (Mr. F. J. Harvey) read the notice convening the meeting.

The statement of account and the agents' report (copies of both having been circulated in the meeting) were taken as read.

The statement of account for the period, June 23 to October 12, showed the following items:—Receipts, 120 tons 15 cwt. 3 qrs. 22 lbs. of black tin, £4704 19s. 3d. (Average price per ton, £38 15s.) To discounts from merchants, £29 2s. 6d.; sale of arsenic ore, £5 14s. 9d.; sale of old materials, 5s.; total, £4740 1s. 6d. To profit, £429 2s. 8d.; balance, June 23, £378 8s. 6d.; total, £1007 11s. 2d. Expenditure. By labour costs, including merchants' bill, as per appendix, £3925 3s. Dues to F. G. Hays, Esq., less income tax, £39 12s. 10d.; dues to Lords of Obythodden, less income tax, £62 3s. 5d.; dues to lords of Tywarthayle Tyas, less income tax, £24 11s. 10d.; dues to Duchy of Cornwall, less income tax, £24 11s. 10d.; dues to Viscount Falkmouth, less income tax, £1 15s. 4d.; dues to John B. Reynolds, Esq., less income tax, 12s. 1d.; dues to Mrs. Jane Vivian, less income tax, 12s. 1d.; minimum rates and other rents, less income tax, £66 8s. 9d.; St. Agnes parish rates, £87 16s. 7d.; bankers' charges (interest, cheque book, &c.), £37 10s. 1d.; profit, £429 2s. 8d.; total, £1470 1s. 6d. By balance at bankers:—Undue bills, £1288 1s. 8d.; less cash overdraft, £280 10s. 6d.; total, £1007 11s. 2d. Assets. To balance at bankers, £1007 11s. 2d.; amount advanced to Polbreen Mine, £203 8s. 7d.; total, £1210 19s. 9d. There are no liabilities due and unpaid.—Appendix to statement of account. Agency, £134; network (driving, rising, sinking, and stopping), £965 4s. 10d.; tribute, £179 1s. 6d.; engine work, £153 8s. 6d.; smithery and carpentry, £77 4s. 3d.; carriage of coal, tin, &c., £237 12s. 2d.; sundry work, £331 6s. 7d.; tin dressing, £128 4s. 2d.; doctor, £26 14s.; club, £4 13s.; merchants' and other bills, £1078 14s.; total, £3925 3s.

The agents' report was as follows:—North of slide. The rise in back of the 81 fathom level west of R. Enolds' shaft is worth £3 per fathom. The wins in bottom of the 72 fathom level west is worth £7 per fathom. The 60 fathom level west of shaft is worth £7 per fathom. The rise in back of the 60 fathom level west of shaft is worth £3 per fathom.—Stopes. No. 1 stope in back of the 80 fathom level east of shaft is worth £16 per fathom. No. 2 stope in back of the 80 fathom level east of shaft is worth £14 per fathom. A stope in bottom of the 72 fathom level east of shaft is worth £17 per fathom. A stope in back of the 70 fathom level east is worth £15 per fathom. A stope in bottom of the 60 fathom level east is worth £25 per fathom. A stope in back of the 60 fathom level east is worth £9 per fathom. Two stopes in back of the 50 fathom level east of shaft are worth £12 per fathom each. A stope in back of the 40 fathom level east of shaft is worth £12 per fathom.—Tribute. We have eight tribute pits working by 31 men, at tributes varying from 6s. 8d. to 14s. in the £.—South of slide. Thomas' stope in the last meeting of shareholders we have completed the sinking of the shaft to the 66 fathom level, driven the crosscut north 7 fathoms, and cut the lode, which is about 1 foot wide, and worth for tin 28 per fathom. We shall now drive east and west on course of it. The 60 fathom level driving west of Thomas' shaft, the lode is small, producing rich stones of tin, but not to value. The wins in sinking in bottom of the 60 fathom level east of shaft is worth £9 per fathom. The rise in back of 60 fathom level east of shaft, east of crosscut, is worth £16 per fathom. The 60 and driving east of shaft is worth £8 per fathom. We are pleased to state that the mine is in a very satisfactory position.—John Williams, Josel Hooper.

The CHAIRMAN said: Gentlemen—You will see by the statement of account that we have sold 120 tons of tin during the past 16 weeks, as against 114 tons in the previous 16 weeks. The price we have obtained has averaged £38 15s. per ton, as against £39 0s. 5d. per ton disclosed at the last meeting, making a difference against us of only 5s. per ton. The net profit which we show to-day, after charging everything up, is £429 2s. 8d., or equal to nearly 1s. 6d. per share. The net profit we announced at our last Cornish meeting was £477 15s., or a little over 1s. 6d. per share. The result is that, including £203 8s. 7d. due from the Polbreen Mine to this company, the credit balance now in hand is £1210 19s. 9d., and no

liabilities due and unpaid. (Applause.) That is a most excellent result considering the very depressing times through which we are passing, as it shows clearly that we have a very valuable property, particularly when you recollect the large amount of tin ground which we have in sight. That tin ground has been measured up by our excellent friend, Captain Williams (applause)—who we are pleased to see here to-day, and if he likes he can tell you what that valuation is, but I do not think that he will value you make him do so. I should suggest that if any shareholder get it for him. (Hear, hear.) The profit for the past 16 weeks has been obtained by what may be correctly called slow work. We have been very careful not to raise more tin in fact, we are firmly convinced—that there are better persons may say to the contrary. We do not believe not raising more tin than we are obliged to. I think we may say that we have discovered as much tin during the last four months as we have taken away. I do not want to be extravagant in my statement; I wish to be well within the mark, but when you consider that we have just cut the lode in the 66 fathom level of Thomas' shaft, I think that discovery will enable me to say that (Hear, hear.) However, if I understand Captain Williams rightly, he has been obliged to take away some men to do deadwork, men who otherwise would have been driving levels. As the driving of these levels will be immediately resumed, undoubtedly Captain Williams will be able to say that he is discovering more tin ground than he is taking away. It will be in the recollection of the shareholders that at the last meeting we intimated our intention of putting in a rock drill to drive back towards Polbreen Mine. Now, we have not done that. (Hear, hear.) The matter was reconsidered, and the purchase of a rock drill, &c., was deferred, for reasons which I need not trouble you with just now. The extra outlay for stamps which we contemplated erecting is also in abeyance. It will be necessary, as the committee have been informed this morning, to put a new winding engine up at Thomas' shaft, but the expense of that will not be all important, and the extra outlay for stamps, although it will be required in the future, is of no immediate consequence. Notwithstanding all this, the committee, after very careful reflection, have decided not to recommend you to declare a dividend to-day. (Hear, hear.) The temptation has been very great, and at one time I thought the committee would decide otherwise; but after very careful consideration they have resolved to nurse their credit balance; and I have no doubt, seeing this expenditure ahead, that this course will commend itself to the judgment of the shareholders. (Hear, hear.) Then there is another point to be considered—the question of Limited Liability—and the committee wish it to be distinctly understood that this company will be turned into a Limited Liability company. They have firmly made up their minds to do this, and you will be interested to know that the lords have given their consent. To-day we propose to take the preliminary step of nominating, and if you think proper, electing a Limited Liability committee, with power to add to their number. They will meet from time to time to determine what sort of scheme shall be placed before you. I may be wrong, gentlemen, in my estimate of the value of this mine, but I am firmly convinced, nevertheless, that our shares are worth at least £6 per share of anybody's money, if, as we think, there is a favourable future before the tin market. If we were for Limited Liability now, I am afraid we should have to issue our shares to the public at £2 each, which means only £12,000 for this property, and I for one would not sign the contract. I would not listen to such a proposal for a single moment. The price of the shares is purely nominal, and I do not believe if anybody went into the market to try and buy 300 shares that he would get them at £6 per share. I am not complaining of the nominal quotation of our shares, nor do I want to bolster up anything, but at the same time I think we may say that when we do offer our shares to the public we shall see that we really do get something like their value in return. At any rate, the Limited Liability committee will give this matter their very serious attention. Well, now, I need hardly tell you, again referring to the tin market, that the committee have taken the very best advice at their command, and I think I may say that that advice is thoroughly reliable. The committee have worked very hard and they are continuing to work hard in a thoroughly disinterested way—if ever a committee did work in a disinterested way this committee does. You know the result of their work in the past, and I have no reason to believe that the result of their work in the future will be less satisfactory. I do most earnestly and heartily congratulate you on being shareholders in what I believe to be under all the circumstances one of the most valuable mines in the County of Cornwall, and I am very glad in these dark days of depression to come before you and be able to give you such a satisfactory and true statement, a statement which is entirely based on facts. I have now very much pleasure in moving:—"That the statement of account and agents' report now presented be and are hereby received and adopted." (Applause.)

Mr. W. M. LEMMON, in seconding the motion, said: Of course, as one of the committee, I am thoroughly familiar with the financial part of the mine, and I feel myself very well qualified to speak in regard to the endorsement of the report which the Chairman has so clearly put before you in moving. My fellow shareholders will have noticed, as has been intimated by the words of the Chairman, that caution throughout has marked the policy of your committee. (Hear, hear.) There are times when caution is required—the worst man on the tin market can hardly with satisfaction forecast the future as to the price of tin. In our case you will notice caution has been exercised first of all in the output. It has been increased a little, but the object of that increase has been above all things to put us in a sound financial position. We wanted to make sure that there should be no call or demand made upon the shareholders at this meeting. With regard to the economy of production, which is rather in the hands of those in Cornwall and our Chairman, who have acted together very well in this direction. I am glad to see Captain Williams with us to-day, for I am certain that no one has done more in the development of the mine than he has. (Applause.) You will notice also that there is a desire on our part that the balance in hand should be increased. Now, in the Cost-book Mines it has, generally speaking, been the practice to pay out when there was really nothing in the earthenware to warrant such paying out, and then whenever the time came for the mine to be stopped the shareholders were almost overwhelmed by demands that they thought had all been met. In one mine with which I had to do a dividend was paid at one meeting, and at the very next meeting the account was proved to be I do not know how many thousands on the wrong side. Now, at the time I resisted paying of that dividend. But we, on the other hand, in increasing our balance, not only regard the Cost-book system, but wish to make it safe, and I believe this company is as safe to-day as the Bank of England. Every liability has been met, and I should not judge from the price which will most likely be realised on the tin which will be raised during the coming quarter, that we shall be able to meet every liability that can positively arise under the Cost-book system during that period. Another point we have thought of was the creation of a reserve fund—and we have all regretted that we did not adopt the suggestion of Mr. Glen when he mentioned this matter in past years. We were all of that mind then, but did not come to a decision. However, now at this crisis we are making a profit, and therefore, ought to have a balance so as to see the 5 per cent. bankers' charge for overdraft. So you will see our policy is one of financial caution—a caution that concerns every shareholder as much as it does your interests. I have great pleasure in interesting the adoption of the report. (Applause.)

Captain WILLIAMS said: The Chairman has told you almost everything connected with the mine and I must congratulate you on having such a valuable property. You will see by the statement of accounts we have sold 120 tons of tin, and if we had had £5 a ton more for it we should have had £1000 profit instead of only £400. It is a very small matter, £5 per ton, and we should consider even that price to be very low in the county

ingly limited, so much so that we are unable to do all that we would like to do, and which it is absolutely necessary to do, in order to develop the resources of the mine. As to the best course to take in the future development of the mine, I think you will attach more importance to the opinion of Captain Reddcliffe or Captain Corlett than to mine. All I will say further is that Captain Reddcliffe was exceedingly encouraging—I may say exceedingly surprised—at the nature of the ground in the 170 fathom level, and at the bottom of the shaft, when he last saw it.

The CHAIRMAN asked Captain Reddcliffe to say a few words.

Captain REDDCLIFFE: I fully endorse what has been said by the Chairman, by the directors in their report, and by Mr. Rogers. It would be a thousand pities indeed that the work on the shaft, upon which so much money has been spent, should now be brought to a close. The levels, when the shaft has been sunk to the proposed depth, certainly should be put out north and south. The shaft is in slate rock, and in that formation the lode generally goes horizontally. To get the ore, therefore, you have to drive levels. The point named by Mr. Rogers is most important. The characteristics of the lode in the 146 were surprisingly good; but they were such as you would generally expect more frequently in the upper levels of the mine, instead of being at that depth; but from the indications you must go deeper to get the lode, and you may be almost sure—as I say, from the indications—that you will get ore. It would be a matter of deep regret—to a practical man even, who has no pecuniary interest in it—to see the money sunk in the shaft and then to find that the levels were not driven.

Mr. ROGERS: I think we might go further and say that you approve of what has been done, and of the way in which we have been working.

Captain REDDCLIFFE: Entirely.

Mr. ROGERS: That is a very valuable and cheap report, for which you might have to pay 25 guineas to any other expert. (Laughter, and hear, hear.)

The meeting closed with a vote of thanks to the Chairman and directors.

LINEARES LEAD MINING COMPANY, LIMITED.

The half-yearly general meeting of the shareholders in the Lineares Lead Mining Company (Limited) was held on Thursday, at the offices of the company, No. 6, Queen-street-place, E.C., Mr. RICHARD DONAGAN presiding.

The SECRETARY (Mr. H. Swaffield) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—Upon proceeding to note down the subjects to which I had to allude at this meeting, I found that the whole thing must necessarily bear a strong family likeness to the address of six months ago. It is, indeed, a case of "Cæsar and Pompey are very much alike, especially Pompey." On the last occasion I had to report a profit of £8192, which was an increase upon the previous profit; this time there is a profit of £8838 to report, which, as you will see, is an increase on the last. On the last occasion we had a dividend of 9s. to comment upon, which was an increase on the previous one. This time it is my pleasure to be able to congratulate you upon having had again an increased dividend—no less, in fact, than 10s. a share. (Hear, hear.) On the last occasion we took a sum of £1000 out of accrued profits to write down the mines, buildings, and machinery account, in order to place that sum of money into working capital, to facilitate our new system of cash payments, instead of three months' bills. This time we do exactly the same with another sum of £1000, and, lastly, the reserves of the mines stood at 7000 tons on the previous occasion, and they are 7000 tons to-day. In the directors' report attention is called to the thoroughly sound financial position of the company, and it is pointed out that the debts of the company on June 30 last amounted to only £274 17s. 9d. Seeing what a very terrible item that of "sundry creditors" sometimes is, this mere bagatelle is a matter which should give intense satisfaction. "Out of debt out of danger" is a very sensible and true proverb, and I have no doubt the shareholders fully appreciate the advantages of the position. "Owe no man anything" is a capital precept—(laughter)—but it is not always possible to achieve it. However, this company has achieved it, because to owe £274 when you have £1281 at your bankers on current account, with a very much larger sum on deposit, is practically owing nothing at all. It would not be a Lineares meeting without a slight reference to the everlasting subject of the price of lead. Compared with the prices of former years—the good old times we hear so much about—the present value is very low, but compared with recent years it has decidedly improved, and having regard to the reduced cost of production to which so many things have contributed, the prices at present ruling are not to be sneered at, and when care and economy are unceasingly exercised, a fair profit can be made out of good mines, such as this company has. It will be observed that the reserve fund now stands at £5353 16s. 2d., part of which has been invested in the purchase of a house at Cordoba—the residue is cash on deposit at interest. The house at Cordoba is not now worth all its cost price, and the odd sum of £353 16s. 2d. was, in fact, a deposit made to go against that depreciation, but as the figures stand it makes the reserve fund look as if it exceeds the amount provided for by the articles, £5000. It will, therefore, be desirable in the next accounts to reduce the value of the house by £353 16s. 2d., and so bring the reserve fund and its investments into harmony with the facts and the articles. It must be done next time, because notice of such a resolution has to be given beforehand. Mr. Taylor will, as usual, give us his interesting statement with regard to the mines; so I will now conclude by moving: "That the reports now taken as read, together with the accounts and balance-sheet, be received and adopted." This is a half-yearly meeting, so there are no elections to come on to-day, and thus a resolution for the transfer of £1000 from profit and loss account to mines, buildings, and machinery account, which I shall propose presently, is the only other business to bring before you at this meeting.

Mr. S. J. WILDS seconded the resolution.

Mr. JOHN TAYLOR said: Gentlemen—I have no stirring feature to point to on this occasion. All the workings of the mine have been steadily carried on, with, I think, what we may call fair results. In the old mine—the Pozo Anecho, in the bottom level—the 200 fathom driving east and west of Warne's crosscut has not opened up any ore ground of value during the past six months, but in the western end it is to be hoped, from what was seen in the level above, that it will be found to be productive before long. The 178 fathom level west of Warne's crosscut during the first three months of the year had a good lode; it then fell off, but recently has shown improvement, and at the date of the last report was valued at $\frac{1}{2}$ ton to the fathom. The stopes fortunately continue to yield very well, and rich ore stuff appears to be constantly found in the sides of the old stopes, which it was supposed had been exhausted. In the Quinteros Mine in the 185 fathom level east of Taylor's engine shaft, the lode showed an improvement in the month of April last, and since then has given an average yield of about $\frac{1}{2}$ ton to the fathom. We have already there passed through a profitable lode, and judging from the level above, the 165 fathom level, we should continue productive for some little time. There is another bunch of ore Mr. Tonkin speaks of in advance of the level, which in the ordinary course of things should be intersected before very long. In the level below the 200 fathom level the lode was intersected by crosscutting south from Taylor's engine shaft in April. The level is being pushed on there to go into ore ground proved in the 165 and the 185 fathom levels. The lode is at present described as large and well defined, turning out stones of ore, but only valued at $\frac{1}{2}$ ton. This is a very important point, and we very much hope to see an improvement there. Speaking generally, the reserves have been fully maintained—they still stand at 7000 tons—and I think our prospects for the future may be looked upon as fairly good. Every effort is being made to urge on the exploratory works in different parts of the mine, in order to add to the extent of ore ground which

we have already developed. We have at present 11 levels being driven from the different shafts, which shows you that a considerable amount of money is being expended in this way, and we hope that it will be attended with good results. I desire here, gentlemen, to express my appreciation of the energy and zeal which has been shown by Mr. Tonkin and the agents. You will recollect—and I am speaking of the Fortuna and Alamillos Companies as well—that we have experienced 15 months' work on all these mines under Mr. Tonkin's, jun., superintendency, and we must all feel that in him, as our superintendent, we have a worthy successor to his most excellent father. (Applause.)

The resolution was carried *unanimously*.

The CHAIRMAN also moved:—"That the sum of £1000 be written off the profit and loss account, and placed to the credit of the mines building and machinery account." He explained that the reason for this was to enable them to have more working capital at their disposal to carry on the business of the company under the new system of cash payments instead of bills.

Mr. EDWARD ST. JOHN seconded the motion, and it was agreed to by Mr. JAMES moved a vote of thanks to the Chairman and directors.

The resolution was seconded, and carried.

The CHAIRMAN briefly replied, and the meeting terminated.

FORTUNA COMPANY, LIMITED.

The half-yearly general meeting of the shareholders in the Fortuna Company (Limited) was held on Thursday, at the offices of the company, 6, Queen-street-place, Mr. ROBERT HENTY presiding.

The SECRETARY (Mr. Henry Swaffield) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—We meet you to-day under somewhat more favourable circumstances than we did six months ago, for we show an improved profit, and we have been able to pay you a better dividend. The reserves of ore have decreased during the past half-year to the extent of 250 tons, whereas for the preceding half-year they were lessened by 500 tons, still the falling-off was an important one, and we shall not feel contented until the new discoveries balance the extraction. During the past few months we have had the San Pedro shaft sunk from the 110 fathom level to a 125 fathom level, and I am glad to say that we are now crosscutting south to intersect the lode. The latest intelligence in regard to these new levels is very encouraging, for, although they are not developing a rich lode, ore is, nevertheless, being opened out there in paying quantities, and if this improved state of things should continue, it will help to put some new life into our affairs. The price of lead has helped us very nicely during the past half-year, and as the lead market continues good we venture to feel hopeful in regard to the result of the half-year upon which we have entered. I am pleased to say we received the following telegram yesterday from our superintendent, Mr. Tonkin:—"Strong lode intersected (by) crosscut north (at) Salidos; value $\frac{1}{2}$ ton (per fathom)." I will leave it to Mr. Taylor to explain this telegram, but before doing so, I will move the following resolution:—"That the reports now taken as read, together with the accounts and balance-sheet, be received and adopted," which I will ask Mr. Taylor to second, and after he has done so it will be open to any shareholder to make any observations they choose.

Mr. JOHN TAYLOR said: I am very pleased to second the resolution. Our Chairman has alluded to the most interesting work which has been carried on in the Fortuna Company's mines during the past six months, which has been the sinking of the San Pedro shaft, at the Canada Incocha Mine, to the 125 fathom level. The necessary depth for the lode was reached in the month of August last, since which a crosscut was driven south to the lode, and the levels are now being extended east and west upon the lode. These are reported to be looking promising; the latest report, dated October 7, gives the value at $\frac{1}{2}$ a ton per fathom. But in the level above the 110 fathoms the lode has recently developed well, leaving a fair profit for stoping, and the agents, therefore, hope to lay open a good quantity of productive ground during the coming half-year in the 125 fathom level below. As a hopeful expectation we have the fact that the winnesinking below the 110 fathom level, in advance of the two ends of the 125 fathom level, are both going upon a good productive lode. Mr. Tonkin tells us that these levels are being pushed forward with all possible speed. In the Los Salidos Mine the 212 fathom level has been driven a long distance on a lode sometimes worth 2 tons, but on the whole averaging not more than $\frac{1}{2}$ ton. Mr. Tonkin and our agents have brought all their experiences and energy to bear upon the great question of how to continue operations at the mine in such a way as to secure a greater measure of success than has fallen to the lot of the company recently. In the deep level in the Los Salidos Mine, the 212 fathoms east of Taylor's engine shaft was driven at a high rate of speed by the aid of rock drills until it was found that the forebreast was approaching the end of the ore ground which was known to exist there from what was seen in the 200 level above. The drive of the 212 fathom level was then continued by hand labour, and the drill used for the purpose of putting out a crosscut south at the 200 fathom level. This crosscut was extended 22 fathoms, and four small lodes were intersected, but they were practically valueless—they contained a certain amount of ore, but were of no commercial value. But it was thought these veins might improve nearer the surface, and a crosscut was, therefore, commenced from the 60 fathom level north of Taylor's engine shaft. When the lode was met with in this crosscut it was 6 inches wide, and was recognized as one of those which had been profitably worked by the former concessionaires. I mean by the persons who held the concessions before the Fortuna Company acquired them. Upon this lode a level is now being driven east, but so far it has not been found to be productive. When the crosscut had been put out south in the 60 fathom level, the machinery being in the place, it was thought desirable to crosscut north as well, and about a month ago this work was started with the object of intersecting a lode which had been formerly worked at some considerable depth by the tributaries. At the date of the last report—October 7—nothing of value had been met with, but yesterday there came to us most welcome news by telegram, which is a very unusual thing in the history of these companies. We seldom have telegrams on matters connected with the mines, but on this occasion Mr. Tonkin is so impressed with the importance of the discovery, and possessing the knowledge also that we shall be meeting the shareholders, tells us that a strong lode has been intersected in this crosscut worth at the place of intersection $\frac{1}{2}$ ton. I have described the history of this discovery in some detail, not only because it is a most important point, and one which may be of very great value to us before long, but also to demonstrate to you what I have already said in regard to the persistent exertions made by the agents with a view to continue the prosperity of our company.

Mr. S. J. WILDS: It is the most encouraging information we have had for the last two years.

Mr. JOHN TAYLOR: You must recollect that the lode spoken about, although it has been extensively worked by the tributaries, has only been touched by us in one spot. It is, therefore, too soon for us to say much about it. The very encouraging point, of course, is that in the only place we have seen it, in the 60 fathom level, it is worth $\frac{1}{2}$ ton, which we know will pay us very well.

The resolution was carried unanimously.

The CHAIRMAN also proposed:—"That the sum of £500 be written off the profit and loss account, and placed to the credit of the mines building and machinery account."

Mr. DONAGAN seconded the motion, and it was agreed to.

A vote of thanks to the Chairman concluded the meeting.

The MYSON WEST GOLD COMPANY (LIMITED) and the MYSON-WYNARD CONSOLIDATED GOLD MINING COMPANY (LIMITED) have sold the gold obtained in August for £1881 8s. 2d.

ALAMILLOS COMPANY, LIMITED.

The half-yearly general meeting of the shareholders in the Alamillos Company (Limited) was held at the offices of the company, No. 6, Queen-street-place, E.C., on Thursday, Mr. ROBERT HENTY being in the chair.

The SECRETARY (Mr. Henry Swaffield) read the notice convening the meeting.

The CHAIRMAN: Gentlemen, we appear before you to-day with a favourable statement of accounts, and with a favourable mine report. In regard to the former it will be seen that a profit is shown of £3731 14s. 4d., as compared with £3480 14s. for the previous half-year, and in regard to the mines we show an increase in our reserves of ore of 550 tons. It is only a year or two ago that we were deploring the poverty of the company's mines, but since then a favourable change has taken place, the result being that we have been able to pay you an increased dividend, and are able to tell you that the outlook for the future is encouraging. There has been an excellent lode in the 100 fathom level east of Judd's shaft, which yielded 4 tons of ore per fathom during the whole of the past six months. The value of the lode is barely so good as that, but, as a matter of fact, we could not expect it to continue at that high yield. Other parts of the mines present a hopeful appearance, so that, on the whole, our mining prospects may be said to be very cheering. We have been fortunate with our lead sales during the half-year, for we have secured good prices, and have generally been able to refrain from selling when, from any exceptional cause, the market has been temporarily depressed. Fortunately, the company is in a strong financial position, and this, of course, is a great help to the directors in carrying out all business arrangements. There is no other feature in regard to the company to which I need specially allude, but I think we may fairly congratulate ourselves on the improvement which has taken place in the company's affairs. I conclude by moving the following resolution:—"That the reports and accounts, now taken as read, be received and adopted." The report ask Mr. Taylor to second this resolution, and to give us some account of the mining operations.

Mr. JOHN TAYLOR: I am very glad to second the resolution. The mining works during the past half-year, we may certainly say, have been carried on with a very considerable measure of success. In the eastern section of the mine the 40 fathoms level east of Santa Ana's shaft has been driven without interruption, averaging throughout a ton to the fathom. The 70 fathom level east of San Felipe's crosscut, from July to the beginning of September, gave us an average of $\frac{1}{2}$ tons. During the month of September it was worth a ton, but it has now fallen off, and is at present only reported to be worth $\frac{1}{2}$ ton. At Judd's shaft the 100 fathom level east has been on, as our agent tells me, a splendid piece of ground during the past six months. The drive of the level was resumed in April, and the lode uniformly turned out 4 tons to the fathom until the end of September. It is a very rich and powerful lode. At the end of September it declined to $\frac{1}{2}$ tons, but since this report was written we have been informed that it has again improved to about 3 tons. The importance of further sinking Judd's shaft, which is specially alluded to in the directors' report, is, therefore, very clearly demonstrated, and the work must be carried out with all speed. Arrangements were completed for this sinking since the report of Mr. Tonkin was written. The marked improvement in the company's position and prospects, to which we were able to point at our meeting six months ago, I may certainly say, sustained, and the outlook is most cheery.

The motion was agreed to.

The CHAIRMAN then moved: "That the sum of £250 be written off the profit and loss account, and placed to the credit of the mines, building, and machinery account."

Mr. DONAGAN seconded the resolution, which was carried.

The meeting terminated with a vote of thanks to the Chairman.

GALLYMONT GOLDFIELDS LIMITED.

The first ordinary general meeting of the Gallymont Goldfields Ltd., was held on Thursday at the Cannon Street Hotel, under the presidency of Mr. David Marks (the Chairman of the Company).

The SECRETARY (Mr. W. F. Garland) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—I have been requested by my colleague (Mr. Yates) to apologise to you for his absence at to-day's meeting. He is, unfortunately, stricken down with a severe illness, and, in consequence, he is unable to attend to-day's proceedings. You will see by the notice just read to you that this is the statutory meeting of the company, convened in compliance with the requirements of the Companies Acts, which prescribe that the shareholders shall be called together within four months of the registration of the company. The precise object of the statutory meeting at this early date after the formation of the company does not appear to be clearly defined. There is no resolution to propose and no accounts to submit to you. Our business to-day, therefore, is of a formal character; but it gives you directors the pleasure of meeting you here, and the opportunity they desire of placing before you the fullest details in their possession as to the encouraging character and value of the property acquired, and also of making you acquainted with the position and prospects of the company generally. I wish to state that I have had the opportunity for many months past of carefully watching the progress of the developments made on this company's property and in posting myself on the actual position. Under these circumstances, I am desirous that you should be made acquainted with the true value of your investment, without entering upon any exaggerated or over-sanguine statements, which might be considered unbefitting on the part of any sensible business man, and particularly when placed in a responsible position; but in a matter so important I cannot rely entirely on memory to place before you the facts and figures which have enabled us to arrive at the estimate before you of our promising goldfield. I have, therefore, prepared copious notes, to which I propose to refer, and I would ask you to bear with me for a short while, and I will endeavour, to the best of my ability, to carry out the task imposed on me to-day, and I trust to your complete satisfaction. I would remind you that the company was registered on June 17 last, and in the case of an undertaking of considerable magnitude like ours four months is too short a space of time within which much substantial progress can be expected. But the record of the business that your company has taken in hand, and which I have the honour to submit to you to-day, will, I think, prove that our undertaking is an unusually substantial one, and that there is every prospect of its developing into a profitable mining investment of the highest order. I have the pleasure to inform you that the whole of the share capital has been allotted, and that the company starts on its career with a working capital of £75,000. The sale contract with the vendor company provided for the transfer of the property to this company free of all costs and charges; so that we start our business with this substantial working capital available for our purposes. We have good reason to believe that we have secured a gold mining property which will fulfil the predictions and anticipations which have been formed of it by experts of the highest authority; but your directors, in arriving at their estimate of its value, rely chiefly on the opinions and statements set forth in the able reports of our capable and reliable engineer, Mr. M. Eisler, and the fact that successful and extensive prospecting operations on the several lodes traversing the property had been carried out under his direction for a lengthened period extending over twelve months, and the result of this thorough and exhaustive examination is that the factor in creating the confidence we feel in a profitable career for our company, and it is important to note that it is a rare capital and labour so much careful exploitation exercised, and so much capital and labour expended to prove the value of a gold mine before offering it for investment. Our company, as its title, the Gallymont Goldfields, designates, is not dealing with a mine of limited area, which, in the majority of cases range from 10 to 25 acres, but we have a property of great magnitude and possibilities, equivalent to 10 or 12 ordinary mines embracing an auriferous area of 266 acres, exclusive of 28 acres reserved for machine sites and reservoirs, making a grand total of 294 acres.

colleagues for their courtesy and co-operation on all occasions, and our excellent managers, Messrs. John Taylor & Sons, and our worthy secretary, Mr. Garland, for their good attention and untiring exertions at all times to ensure the careful management of our company's business. I have now to inform you that the latest news from the mine is most satisfactory. Your directors cabled to the local board to inquire as to the progress of operations and immediate prospects, and the following cable message has been received this week, which I will read for the information of this meeting: "North prospecting shaft—machinery started working; enlarging Great Western Shaft. Forge Reef opened out 180 yards; ore body continuing; reef will be found highly payable. Perseverance—Drive looks well; prospects very good." This short cable report is very satisfactory indeed, and it must be evident to you that we have good and substantial reasons for the confidence we feel in the success of our undertaking; and, lastly, I would add that I wish, in our mutual interest, that all our mining investments were on as solid a foundation and their prospects were equally as promising as those of the Gallymont Goldfields.

A SHAREHOLDER asked if the whole of the property had been transferred.

The CHAIRMAN: On that point I should like to explain to you that the vendor company, under their agreement with the Gallymont Company, were to transfer to us 264 acres. When the matter was gone into by the solicitors on both sides in Australia, it was found that our engineer had made some slight miscalculation as to area, which proved to be 294 acres. The vendor company generously handed over to us the whole area. We have had transferred to us 256 acres of mining leases. The balance of the property is freehold, the titles of which have been duly transferred to the company; but, under the regulations in force in the colony for mining in private property, a special lease must be secured by the owner, or by any individual who may apply for him, to mine under freehold areas. The application for that lease has been duly placed in the Government department, and we have the authority of the solicitors of this company in stating that they have the assurance from the Government that that lease will be issued to us. Therefore, you see we are in possession of the 294 acres; but we are not yet in possession of the title to mine under the freehold, although our solicitors are perfectly satisfied we shall get it in the course of a few weeks.

A SHAREHOLDER: Then I understand we cannot at present mine under the freehold?

The CHAIRMAN: The Government, in parting with the freehold, does not part with the right to the gold; but it never asked for a royalty. About a year ago an Act was passed to compel compulsory mining under freehold properties. Our application has gone in in due form, and there is no difficulty except a little delay in the Government department. Mr. Taylor will now address a few words to you with respect to the proposed developments and plans.

Mr. JOHN TAYLOR said: Gentlemen—Although it is so short a time since this last property was acquired by your company, the development of the mines has been vigorously taken in hand, and with, I may certainly say, up to the present time, excellent results. There are, as you have been told, four well-defined reefs passing through this property at a distance of about one mile and a-half. I think we may now feel assured that there are five reefs, and possibly more. The four reefs about which we know a good deal are of fissure origin, and all the indications point to their being of a permanent character, and of a character that will carry payable gold to a great depth. Numerous shafts have been sunk at depths varying from 60 feet or 70 feet to over 100 feet, and in one case to nearly 200 feet. Until quite recently, however, nothing in the way of systematic mining has been done, and but little either of enterprise or mining skill brought to bear. When a reef pinched out or was lost through a fault or slide, which is not uncommon in most mining districts, instead of boldly driving on to search for the reef in order to find it again beyond the dislocation, or whatever it may be, the former miners would go out to the surface and commence another shaft—or, perhaps, the word pit would be a better word to apply to it—some short distance either north or south, and prick down on the reef again. Beyond this the lack of capital rendered it impossible for them to purchase such machinery as was required for pumping the water and following down the explorations to any depth. All this is now quite altered. Levels have been, and are being driven at present, at 160 feet and 200 feet below the surface for considerable distances on the reef and on several of the more important shafts, and, for the most part, are already in good ore. From the Great Western Shaft on what is called the Middle Line, the 160 feet level has been driven north 150 feet, 120 feet and that being in ore. The same level has been driven south from the Great Western Shaft 90 feet, 80 feet of which is in ore. Cross-cuts have been driven east and west from the Great Western Shaft to the Forge and Perseverance Reefs, in each case a distance of about 180 feet. On the Forge Reef the very satisfactory cable message just received tells you that the level had been carried for 540 feet, and that the ore body there was continuous. The message goes on to say that this reef will be found to be highly payable. On the Perseverance Reef also the cable message says the drive looks well. At another shaft to the south (the Homeward Bound Shaft) the 165 feet level has been driven south 120 feet, all the way again in ore ground. The 200 feet level of the same shaft has been driven only 28 feet, but there we have a lode $\frac{1}{2}$ feet wide in good stone also. In the Kentworthy Shaft there is a drive at the 165 feet level in a continuous body of ore for 100 feet, and from this point some very rich pyritic ore had been taken, the assays, I believe, going as much as 6 ounces 18 dwt. to the ton. I do not consider it necessary to describe any further the workings in detail; I merely wish you to realise that the exploration has been taken vigorously in hand, and as far as we have gone we have every reason to be satisfied.

In order to attack these reefs in such a way as to secure an output of very considerable quantities of ore from much greater depths with economy, several main shafts will be required, and already, in pursuance of instructions from the directors on this side, Mr. Eissler advises us that he has selected a site for one new shaft near the southern end of the property between the Middle and Perseverance Reefs, and that he will enlarge the Great Western Shaft, of which I have already spoken, and continue the sinking of that shaft, and that he has also selected the site of a shaft for the development of the northern portion of the property. We did not know much about that shaft until we received the cablegram, which your chairman has read, telling us that the machinery upon it has gone to work. Therefore there must have been a good deal of work done within the last few weeks. Upon these shafts will be placed powerful machinery for pumping the water, for hauling the ore, and for compressing the air for the rock drilling machinery, which is a very important matter in these days—in fact, necessary for working the reefs with efficiency and economy upon a large scale at depths of 1,000 feet or 1,500 feet. In addition to this we have the erection of the necessary appliances for the treatment of the ores and the extraction of the gold. The battery is proposed to be composed of forty or, perhaps, sixty stamps of the most modern construction, and, of course, we shall place them in such a position that they can be added to with facility at any time if such addition should be wanted. Concentration plant will also be required, and very probably the cyanide process, which is giving such splendid results in other places, and you are, no doubt, all aware. Now, we all know Mr. Eissler, and how we can rely on what he says, and how he has safely led us in the past, in this and other businesses. Your chairman has mentioned that the property has been examined by several other well-known authorities, among these appears the name of Mr. Samuel Gifford. That gentleman has been employed by my firm on many important missions extending over a great number of years, and on his judgment I always have placed, and still do place, the most implicit reliance. Mr. Gifford says the position of the property and the character of the reefs are everything that could be desired for economical working, that the long lengths and comparatively continuous excavations prove the existence of profitable ground along them, and that there is little doubt large quantities of payable ore will be found by a systematic exploration of the reefs. Mr. Gifford concludes his report by saying that in his opinion the company has a very excellent property for mining, and one which offers the strongest chances of becoming a most successful venture. We must remember that this report of Mr. Gifford's was written more than a year ago, namely, in September 1895, and we must also remember the fact that everything done on the property since that time has gone to confirm the opinion that our company has before it a very brilliant future. (Applause.)

A Shareholder asked how long it would take to complete the new shafts, say, to a depth sufficient to cut the reefs.

Mr. TAYLOR, in reply, said the new shafts would be pushed down as fast as possible; but they could not tell how far they would have to go in order to cut the reef. It might be desirable to sink the shafts 300 feet or 400 feet before much exploration was done on the reef.

The CHAIRMAN remarked that, although they could not answer the question exactly, they knew that the country was very easy for mining. Mr. TAYLOR said a great deal depended upon the position of the new shaft. They had no information as to whether they were being sunk close to the reef, or to cut the reef at a considerable depth.

A SHAREHOLDER inquired the width of the reef already being driven upon.

Mr. TAYLOR said the reef was from 1½ feet to 2 feet wide.

The CHAIRMAN remarked that the reef in some cases extended to 4 feet in width, but the average was 20 inches.

The proceedings terminated with a vote of thanks to the Chairman.

ALMARAZ TIN MINING AND SMELTING COMPANY, LIMITED.

The first ordinary general (statutory) meeting of the shareholders of the Almaraz Tin Mining & Smelting Co. Ltd., was held on Thursday at Winchester House, Old Broad Street, E.C., Mr. Robert B. Lavery (the chairman of the company) presiding.

The Secretary (Mr. Edgar E. Warren) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen,—You will understand from the notice read by the secretary what is the object of this meeting. Practically, it is confined to the notice, and is purely a matter of legal form. However, there is some advantage to us, inasmuch as it gives the directors an opportunity of placing themselves in closer touch with the shareholders of this little company. From what I have to say to you, perhaps you will be able to feel the pulse of your investment, and if it is fortunate enough in giving you that confidence which we possess ourselves as to the future of the undertaking, my words will have had an effect, which will give me very great pleasure. You have a property which at present has not produced ingot tin. The question is—How near are we to that happy desideratum? I may first tell you that the whole of the working capital asked for was more than fully subscribed. The £35,000 of capital asked for by this company is practically in the coffers of the shareholders or their bankers. Every application and the call which followed have been fully met. The certificates are all drawn, and have been mostly issued, or are waiting at the company's offices for those who have not yet thought it necessary to take them up. Your properties and their titles have been duly registered, and the company is in possession of its freehold lands, its mills and machinery, and the mines which belong to the proprietary. Naturally, we all want to know what those properties are. Well, gentlemen, in the first place we have a complete mill, with a perfect modern dressing plant—a mill whose capabilities were stated to be eighty tons per day, but we shall be able to pass through 100 tons per day, which is some advantage over our original anticipations. With reference to the mineral tin, is on an entirely new automatic and intelligent principle. The situation of the mill is central to the mines, which number seven. Four of these are sufficiently advanced by working shafts and all the paraphernalia which is necessary below the ground to enable us to declare that we have valuable properties. We are in the position to say that the two nearest, from which we shall first bring produce to the mill, are extremely rich. It would be folly on my part to tell you that we shall get percentages which can never be determined until the mill has performed its work. But we have had hundreds—I was going to say thousands—of analyses, which have been made with careful testing, and without any particular prejudice, although there is, naturally, a prejudice to show your property is good. Testings were made in my presence and of others, and the stone that we thought was not a fair average and could not be maintained we rejected. Looking at the stone as it has been looked upon by critical experts, we estimate that we shall produce a very handsome percentage, and that percentage we have ourselves critically tested by halving. Therefore, the mines that will be the first feeders of the mill are calculated to run—and we are almost certain that they will run—an average of 5 per cent. black oxide of tin to the 100 tons of quartz crushed. If they only run enough to give us 1 per cent., we have a daily product which is far in excess of our expenses at home and abroad. Two per cent. will give us something that will approach a very considerable dividend; 3 per cent. will show us something that becomes almost too important for me to hint at. We have not yet got to 4 per cent.—the figures for that you will be able to calculate yourselves. Five per cent., which is the oasis we have to arrive at, is in no way improbable; we ourselves expect twice that, but supposing we reach our 5 per cent., we can pay you a dividend of 50 per cent. Whether we shall do this or not a few months will tell us, because these mines were acquired as a going concern. The three or four months which have elapsed since then have been employed in digging into the bowels of the earth, and adding to the stock the mill is to deal with. We estimate 15,000 tons of stone is available for the mill, and calculate an easy output within two months equal to 100 tons per day. We start, therefore, with sufficient good mineral to supply the mill, and a reserve to meet any deficiency which might occur. Under these circumstances, gentlemen, I think, without being too optimistic, I may say that we have a going concern within the period of the statutory meeting. We have a concern that is fitted up with the electric light, which will enable us to work the full twenty-four hours. The nature of our dressing tables makes this very desirable. Other lights might have done, but in this, as in everything else, we have, regardless of expense, gone in for the best. The electric installation will be perfect for using these tables, as I have said, during the twenty-four hours. Now with a reserve around us, with a plant capable of dealing with the present output of the mines, and with five mines in reserve to deal with ourselves by the erection, at a future time, of further dressing plant and mills, I will not deal to-day, because that is a question for you in the future when the first little enterprise has been proven. I may say, however, that with success attending these efforts there will be an opportunity in many ways of dealing with the other valuable properties. We have a capital which you have subscribed, and which has produced indirectly all these results. Your working capital has hardly been touched. With effective engine power up to 180 to 200 h.p., you have not spent much of your money. With all this modern machinery, which I may tell you is a success commercially before it moves, because we have proved that over and over again, you have still your working capital in reserve, and I ask you whether, under these circumstances, we are not in a strong position. Whatever money has been spent we have got value for. The mineral which has been taken out of the ground, the stores which have been accumulated, the reserves and all those etceteras which would form a long list if I were to detail them, are there to represent the expenditure which has been made since the Company was formed; but the great expenditure which has led up to the works which exist to-day has not come out of your pockets, but out of the pockets of the vendors. That reminds me that we have hardly had a dissentient from the operations and the conduct of this company since it was incorporated, except that some of the large shareholders have thought they were badly used because we have not considered it necessary to make the second and third call. I would like to engage your attention for a few minutes upon that subject, because it seems as though there was a desire on the part of the holders of the vendors' shares to take an advantage which would undoubtedly be theirs when the first dividend is declared. We have consulted with those who understand this question—with gentlemen whom we think would give a fair and unprejudiced reply to the question put to them—namely, Ought those shareholders who so desire it to be allowed to pay up their shares in full? The unanimous verdict which has been given is that they ought. You will, therefore, receive a circular in the course of a few days giving the option to those who choose to pay up their shares in full until a fixed time, say perhaps the end of November. Those who do not wish to do so will, of course, not be compelled to do it, unless the necessities of the company are such that they require the money, and in that case the shareholders will have due notice in the ordinary way. I mention this subject simply to show that there is a desire that no advantage should be taken by the shares which are fully

paid up, and it will be for you to exercise the option which is proposed. Now, on the question of power and further developments in this country there is a feature of very great importance. We have two rivers of European importance, the Essler and the Douro. We have estimates and surveys which are prepared, but which are not yet handed to us, for the transmission of power to our various mines. The estimate of that power goes quite beyond any strength we should, under any circumstances, find necessary. It would be an easy matter to get 1,000 horse-power. Having said that much it is useless to talk about any greater power, but the transmission of that power is a very much more practical thing to do than was thought a few months since, to deal with the necessities of the property, from the smallest requirement to the most important. The driving of the machinery, both at the mines and at the mill, has met with a very ready solution. When we have possession of all the details of this scheme it may be necessary either to issue a circular or call a meeting to give the shareholders an opportunity of expressing their opinion as to the advisability of those extensions which we should be able with ease and comfort to carry out if we adopted this plan. Those who are making the estimate are firms of the highest order in this direction, and I am perfectly certain we shall have an elaborate plan laid before us which, as common-sense business men, will either recommend itself or be condemned. For my own part, from what I have heard on the spot, and from what I have seen, I think there is no doubt about it, that it offers an opportunity which hitherto we have not dared to contemplate, in dealing with a mill in which the lowest percentage of stone could be dealt with so economically, that we should throw nothing away. Up to this moment we have been rather saucy in this respect, and we have taken up stone from heaps of stuff and analysed it afterwards and found the material very rich indeed, but it is so finely disseminated that it is almost impossible to say what you may expect, comparing it with the ordinary tin stones which have passed under survey. That is one of the features of these properties. We have for our ingots a market in Spain, and that market extends to other Mediterranean countries, and it gives an advantage to the vendors on the sale of ingots of 140 to 150 pesetas per ton, that being the import duty upon all tin imported into Spain. We are inundated with applications for our tin. People are anxious to buy the native tin. The quality is A 1, the best we have been shown in the Cornwell market. I was in hopes to be able to show you ingots from the black oxide, but unfortunately we have received a telegram to say that they will not arrive until to-morrow morning. At a future time, if you call at the office, you will see commercial ingots. But we have a few pieces here which for quality and clearness and purity are exceptional. That is a very important item, because it gives us the best price when we sell. Now, gentlemen, I think on this occasion when we are supposed to say nothing, you will perhaps think that I have said too much, but I am myself always anxious to know where I have put my money, and as I said at first, so do I conclude by repeating that I hope you will have some idea where your money is invested. One thing I can promise you—that it is in the hands of those who will not spend it foolishly. We have plenty of it, and before we make it much less, we hope to be able to give you the dividends which you are all so anxious to see. It is not a question of romance, but simply of quantity; and as I know shareholders never object to a large quantity, our efforts will be directed to make that quantity as large as we can. We have present the managing director in Spain, who represents and looks closely after your interest. I will ask him to say a few words. I have forgotten one thing, and a very important one—the question of the smelting furnaces. We have the plans all complete. It is only within the last few hours that they have been made perfect. That is a very small matter, compared with those with which I have dealt. It does not give us much trouble, but, of course, it is a necessity. In the meantime, our works will begin to work day and night—daily within a week or ten days, and the twenty-four hours a week or two after. You will be made early acquainted with the production of the mill, and long before the time we have accumulated a further quantity, our furnaces will be ready to deal with it in the ingot form. Gentlemen, if you will kindly listen to a few words that Mr. Owen may have to say to you, I daresay you will hear something more practical and in better form than what you have heard from your chairman.

Mr. E. OWEN: I am afraid there is not much left for me to say; the Chairman has practically exhausted the details of the mine, and the machinery. There are, however, one or two points to which I should like to refer. The Chairman mentioned that there were only 15,000 tons in reserve, whereas there are 20,000 tons, which is a very large amount. One per cent. or two per cent. will pay us much better than it does at any other mine in the world, because whereas we employ twenty men to dress, the Cornish people employ 120. For that class of labour they pay 2s. 6d. per day, whereas our labour only costs 1s. per day. Our machinery is perfectly automatic, instead of stamps we use krom rolls and Linkenbach table. That is why we employ so few men. The Chairman did not mention the extra profit which we will make by smelting—namely, £3 10s. per ton, and 6 per cent. by saving the Government duty, which is a very large item. That will give you a large percentage on the capital over and above the market value. In Liverpool the other day a very large tin firm told me that if we would send the tin to Liverpool, 30s. per ton would be saved, because there is a market there for it as well as in London. The tin is perfectly pure, as the samples will show you. We have an aerial tramway, and instead of paying 2s. per ton for cartage, it will only cost us 4d. per ton. That is why we can work so cheaply.

Mr. CRUIKSHANKS proposed a vote of thanks to the Chairman for his interesting account of the property.

Mr. COVERDALE seconded the motion, which was carried unanimously.

The proceedings then terminated.

SIERRA BUTTES GOLD MINING COMPANY, LIMITED.

The 53rd ordinary general meeting of the shareholders in the Sierra Buttes Gold Mining Company (Limited) took place on Thursday, at the Cannon-street Hotel, Mr. F. TENDRON presiding.

The SECRETARY (Mr. John Saul) read the notice convening the meeting.

The CHAIRMAN said the profit for the half-year on the Sierra Buttes, including the Uncle Sam Mine, was £1007 12s. 4d. The former balance and amount standing to reserve totalled £2471 6s. 6d., while the moiety of Uncle Sam's reserve due to Buttes was £5000, and £20,000 was transferred from the reserve of the new mines account. This made a total of £28,478 18s. 10d. The moiety of cost for which the Buttes shareholders were responsible was the outlay on the new mines, £29,714 11s. 11d., and consequently they had a deficit of £1235, or about the amount of profit which was made during the first three months of the present half-year. Already, however, they had paid £340,953 away in dividends, and it must also be remembered that they stood possessed of a moiety of three mines—Uncle Sam, the Whitlock, and the Mammoth. What that moiety was worth they would endeavour to form some opinion from the remarks he would presently make. The position of Plumas Eureka was that after paying a dividend of 6d. per share, and so having given the shareholders in dividends to the amount of £516,793, they had a reserve of £29,400, the moiety of the Uncle Sam Mine £5000, and £20,000 transferred from the reserve to the new mines account. These items totalled up to £54,400, but they had to deduct from it the moiety of capital expended on the new mines—£29,714. Therefore, the Eureka had a credit balance of £24,685, and its investments were £2655 more than the cost, making a total of £27,340, while, besides, they owned a moiety in the same three mines as Sierra Buttes. The Uncle Sam Mine during the past half year crushed 12,995 tons, yielding 18s. per ton, or £11,720. The cost was 16s. 8d. per ton, or £10,874, and consequently the profit was only £846. The new 6 stamps cost £481. The

original cost of the mine was £32,000, and during the years it had been in their possession they had obtained from it to the value of £220,053, and the cost had been £135,555, which, therefore, gave them a profit of £84,503. They used £12,766 of that amount for surface works and development, while they had transferred to the Buttes and Eureka accounts £71,737. It had been a good investment, and yet it had been a disappointing mine for the last two years; in fact, he might say, for the last four years. All the rich classes in the eastern part of the mine seemed to die out in depth, and in the western part of the mine, where they thought that they had reserves of ore, the result of the development of the deep levels had been utterly disappointing. Fortunately, however, he warned them two years ago that Uncle Sam was then looking exceedingly bad. The previous day they received a telegram saying that the mine would be closed down this week, but he intended sending out any money from London if the mine could not pay its own way. If, however, those in charge discovered anything, and they volunteered to get the ore out, the company would crush it for them at a royalty. Referring to the Whitlock Mine, it would be remembered that they bought that property two years ago. They were asked to give £30,000 for the right to work the mine at their own expense for six months, before deciding to complete the purchase. Everything reported that a ton of ore taken from the whole width of the vein, 50 feet below the tunnel, yielded in a mill at San Francisco 90s. But Captain Johns told them that the average at the bottom of the shaft was only 46s. a ton, while the average at the average value of the ore throughout the mine at 40s. On March 18th, 1894, when the option was still running, they had obtained an extension of time, Captain Johns wrote that the value of the ore at the bottom of the shaft was worth 48s. a ton, and in the drives from 40s. to 48s. On May 24th, 1894, the drives were out to a distance of 179 feet, and the samples of ore tested by the mortar and hand spoon were found to be worth from 50s. to 60s. a ton. Their own men were working on the mine at this time, and he believed that everything was being done in a very straightforward manner. However, when the option expired they felt that they had had time to develop the mine fully, although they had spent some £4000. The vendors were approached with a view to reducing the purchase price, and eventually they accepted £16,000. Twelve months afterwards Mr. Johns wrote that the Whitlock shaft had been sunk 270 feet below the adit level, and that the vein of same distance varied from 4½ to 8 feet in width, and was valued at from 24s. to 43s. a ton, while at the bottom of the shaft it was 12 feet wide and worth 24s. Captain Johns' statements being confirmed by Captain James, it was impossible to believe otherwise than that they had a good property. Captain James, whom he looked upon as the most able sampler ever known in California, was specially sent to the Whitlock Mine in June, 1894, and he (the speaker) had extracted the following from the report he then made:—"Samples from the floor of the adit level, two chutes 360 feet and 200 feet long, 20s. to 40s. in value. Quality of the lode, from tests made by Mr. Johns, and almost daily by Captain Mills, I am inclined to think we have in places an average quality of 46s.; mining and milling cost 20s., leaving a profit of 26s. a ton. The reserves are about 9000 tons, and should the drive continue to disclose ore of about the same grade by the time the bond expires it ought to pay for the property." Captain James at that time thought the price to be paid for the property was £20,000. One could place absolute reliance on Captain James' statements and, therefore, he (the Chairman) was not going to give up his faith in the Whitlock Mine just because for the past six months they had mined some 8000 tons of ore, which, instead of returning 46s. a ton, only returned 23s. Mr. Johns, however, put the value at 40s. a ton. The working cost was only what they anticipated. Now, the one fault they had to find, and it was a very serious one, too, was that the ore that was expected to return from 35s. to 40s., only gave them 23s. That fact must weigh very heavily on Mr. Johns' mind, for he had always devoted himself to the company's interests, and was ever prepared to do what was required of him. It was the intention of the directors to ask Mr. Johns to take over the superintendence of the Whitlock Mine himself, and so give him an opportunity of fulfilling the expectations he held out when they bought the property. Captain Johns would also act as general manager of the other properties. It was true the Buttes and Eureka Mines only lived from month to month, and that Uncle Sam was not, what they heard was correct, living at all, and therefore Captain Johns would practically only have two mines to look after. As to the Mammoth Mine, he told them all about that property at the last meeting—that they were going to sink the shaft 600 feet, if necessary, to see whether they would have the good fortune to find that, like other mines on the Mother lode, the Mammoth improved in depth. It was the same story as at the Whitlock, however, instead of the ore milling what they were led to expect it would, it only milled 12s. a ton, whereas it was previously estimated to be worth 20s. Now, that was all the difference between profit and loss. They had received a telegram stating that the Mammoth shaft was still improving in the lode, while Captain Blunett, who had been in charge, was most sanguine as to their prospects. The reef was 24 feet wide, and, unfortunately, carried gold all through instead of being concentrated on the hanging-wall or foot of the lode. This was at the point where they crossed by tunnelling, and 300 feet below 40 tons of the mineral that was extracted only turned out to be worth 12s. It was very hard to understand why the assays did not turn out to be correct—that the mill should give so inferior a result. But to his mind it was very difficult for a man to resist the temptation of taking out the mineral which he thought would assay as well as he wished. Captain James was, however, above that temptation and so was Mr. Johns. They intended, in spite of these adverse circumstances, to persevere at the Whitlock, and use good feature they had was that the branch vein was still continuing, having already been traced for a distance of 70 feet. Its width was fairly regular—3 to 4 feet—and the quality of the ore was good. They only knew its value by assay and not by milling, because the quantity was so small at present. Mr. Johns said it was worth 36s. a ton. Some or later he believed that at the Whitlock they would find they had not been wrong in placing confidence in the men of whom they had had experience of so many years. He then moved the adoption of the report and accounts. (Applause.)

Mr. N. E. B. GAREY seconded the motion, and it was agreed to.

The CHAIRMAN then moved that a dividend of 6d. per share, free of income-tax, be declared on the Plumas Eureka shares, payable on the 16th inst.

Mr. WOODS seconded the resolution, which was carried. The CHAIRMAN also proposed a hearty vote of thanks, and at the same time a vote of encouragement, to Mr. Johns and his staff in California, and to Mr. Saul and his staff in London.

Mr. O'BRIEN seconded the resolution, and it was agreed to.

A vote of thanks to the Chairman and directors concluded the meeting.

(Meetings of Mining Companies continued on Page 1878) 1

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H. G. HENDERSON, formerly of the Royal Artillery.

ASSISTANTS.

Captain W. RICHARDS, formerly Underground Agent, West
Basset Mine, Redruth.
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NOTICE IS HEREBY GIVEN, that the SHARE TRANSFER
BOOKS of the Company will be CLOSED from SATURDAY
the 24th, to SATURDAY the 31st OCTOBER, both days inclusive,
 for the preparation of the Interim Dividend which will be paid on
 the 2nd November, 1896.

Holders of Share Warrants to Bearer are informed that they will
 receive payment of the said Interim Dividend at the rate of 18s.
 per Share, free of Income-tax, on and after MONDAY, the 2nd
 November, 1896, on presentation of Coupon No. 36, either at the
 Company's Office in London, or at the Société Générale, rue de
 Provence, 56, Paris, or at the Deutsche Nationalbank in Bremen.
 Coupons for payment in London must be left four clear days pre-
 viously for examination, and may be deposited forthwith.

By Order,

GEO. N. THOMSON, Secretary.

Offices of the Company:
 30, St. Swithin's Lane, 14th October, 1896.

THE CENTRAL QUEENSLAND LAND
CORPORATION (LIMITED).

Share Capital ... £120,000
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THE Directorate, awaiting the Report of Mr. Harrie Wood (late
 Secretary for Mines, New South Wales), in connection with a
 recent discovery of gold on the Nreehold Estates of the Corporation,
 will NOT be able to ISSUE the PROSPECTUS to the public until
 the 20th instant.

Copies of the Prospectus, Maps, and Reports will be forwarded on
 application (by letter) to the SECRETARY, 33, St. Swithin's Lane,
 London, E.C.

THE MYSORE GOLD MINING COMPANY
(LIMITED).

6 and 7, Queen Street Place, London, E.C., October 16, 1896.

AT A MEETING of the DIRECTORS held this day, it was
RESOLVED—
 "That an Interim Dividend (free of income tax) of 7s. per
 share be and is hereby declared, payable on the 11th day of
 November, 1896, to the Shareholders on the books of the Com-
 pany on 24th October, 1896, and that the Transfer Books be
 closed during the said 24th October, 1896.

By Order of the Board,

I. CROCKER, Secretary.

N.B.—The above Dividend, together with the 6s. per share paid
 on 11th July last, will make the sum distributed out of the profits
 made for the first eight months of the Company's financial year
 13s. per share, or 65 per cent. upon the nominal capital of the Com-
 pany for that period.

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DIARY.

Tuesday, October 20.

Lindsay's Consolidated Mines, Cannon Street Hotel, 12.

Tin Ticketing, Tabb's Hotel, Redruth, 1.

Wednesday, October 21.

Brownhill Central, Cannon Street Hotel, 12.

Joker Proprietary, Winchester House, 12.

Port Talbot Railway and Docks, Winchester House, 12.

Chartered Bank of India, Cannon Street Hotel, 1.

Krugersdorp Proprietary and Gold, Winchester House, 3.

Midland Railway of W. Australia, Cannon Street Hotel, 3.

Golden River, Queensland, Winchester House, 3.30.

Inst. of Mining and Metallurgy, Geological Museum, Jermyn
 Street, 8.

Thursday, October 22.

Aroha Mines, Cannon Street Hotel, 2.

Friday, October 23.

Glynn's Lydenburg, Johannesburg.

The Mining Journal,
RAILWAY & COMMERCIAL GAZETTE.

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 intended for insertion must be written on one side of the paper only. The
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 at 3, DORSET BUILDINGS, SALISBURY SQUARE, E.C., until 9 p.m.

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LONDON: OCTOBER 17, 1896.

ECONOMY IN GOLD MINING METHODS.

IT is one excellent result of the popularisation of all technical
 knowledge nowadays that mining shareholders are
 beginning to show a really intelligent interest in the equip-
 ment and working of their property, and are no longer content
 to leave these matters blindly in the hands of the directors. As
 a consequence directors themselves are increasingly alive to the
 important factors of mining success which depend upon the
 practical details of mining work, and there is manifest amongst
 them a much greater readiness than they ever showed before to
 adopt any new idea which is conclusively proved to have merit
 in it. This attitude is abundantly justified by the important
 part which technical improvements have played of late years in
 the expanding prosperity of the gold mining industry, and it is
 even more strongly approved by the conditions under which
 gold mining enterprises is now, in many cases, extending itself.
 In Rhodesia, Western Australia, and New Zealand capital
 is being sunk in the attempt to find efficient and
 therefore, economical means of extracting the precious
 metals from more or less refractory, and, in some
 cases, low grade ores. If it were not for the wonderful results
 achieved by the use of cyanide of potassium, we may be certain
 that the recent revival of mining in the latter country would
 never have occurred, and it is the introduction of this and
 other methods which are mainly responsible for the wonderful
 growth of the Witwatersrand industry. So far as Western
 Australia is concerned, not itstanding the extraordinary

richness of many of its deposits, the success of the district, as a whole, will depend largely upon the recovery of gold from the tailings and the general economy of working methods. The large capitals which are possessed by the leading groups of Western mines, as well as the united policy represented in their direction, will, no doubt, lead to no less an extensive employment of electricity as a means of power transmission than it has already found on the Rand. Electricity not only involves a saving in the cost of power, but it enormously simplifies and facilitates the operation of the mine over a wide area. Where, for instance, 12 shafts were employed, with a steam engine at each, to work a single large property, it is now possible to work it with three main shafts, and with only one central power station. But it is to be hoped that in the new installations which are being laid down in Western Australia, a much more liberal use will be made of compressed air for power transmission than has hitherto been the case in gold mining. For hoisting purposes especially pneumatic power has numerous important advantages.

Mining engineers, in the present period of activity in equipment, have a great opportunity to deal practically at length with the eternal problem of wet versus dry crushing. The latter is, theoretically, so much the better of the two that the almost undisputed pre-eminence of the wet system points to the existence of defects in all previous applications of dry crushing which might be removed. In New Zealand, as well as in South Africa, stamp batteries have been put to dry crushing with excellent results, so far as the pulverisation of the ore went. In the latter country the success which is now attending the treatment of slimes by the cyanide process does away with the principal inducement to dry crushing. But in other parts of the world the difficulty of obtaining adequate supplies of water makes the substitution of the dry process a matter of undiminished desirability. In South Africa dry crushing has been largely employed as an item in the direct cyaniding process, by which amalgamation is done away with altogether, and it is probable that with the improvements in both electrical and zinc deposition, which are now being made, this method will be a formidable rival to the recovery of gold over the plates. But recent discoveries have rendered the dry crushing process by no means dependent upon the substitution of this treatment for amalgamation. For instance, the system of amalgamation in a revolving barrel, invented by Messrs. MacArthur and Yares, would give a direct incentive to the use of dry crushing plant if it were found to be successful in practice. Another new means of amalgamation, adapted to dry crushing plant, consists of a series of circular pipes, containing mercury, through which the pulverised ore is forced by compressed air. It is evident that such a system as this could be applied to an ordinary stamp battery without any decrease in the amount of work done by that machine, or delay in the doing of it. The motive power for the ore would be simply air instead of water. From both of these the tailings could be collected for treatment by cyanide or otherwise. Indeed, the first of them is designed so as to include cyaniding with the amalgamation process.

It is inevitable that the increased attention lately given to dry crushing and its accessories should awaken the old controversy as to the relative merits of the falling stamps and other mechanical means of pulverising ore. This is much to be regretted, as it is a question for us to decide here. But it must be said, on the side of the stamps, that they are quite unrivalled as a means of the steady uninterrupted output so important in mining work; they form a very elastic instrument of production, which can always be added to or taken away from, and they are perfectly simple and easy in their operation. On the other hand, we must express a decided opinion that the design of both ball and roller mill has made conspicuous advances of late. Some of the former, which have been used upon very hard silver ore in Chili, have given results both as regards productive capacity and durability which compare very favourably with anything previously attained. The roller mill also has been greatly improved by the provision of means to relieve the strain upon the wearing parts, and there is a strong tendency to make wide use of them in Western Australia. As these other means of crushing ore are considerably cheaper in first cost than stamps, the improvements recently effected in them must count as establishing a formidable rivalry against the latter. Apart altogether from the means of crushing employed there is a wide field for further economy in gold mining afforded in the improved sorting and concentration of the ores. In this respect gold mining practice has lagged behind that of other branches of metalliferous mining, but it is now beginning to be seen that the margin of profit in dealing with auriferous ores depends as much upon small economies as it does in the treatment of less valuable metals.

DEPRESSION IN THE WESTRALIAN MARKET.

THE West Australian section of the mining market has of late, as every one is painfully aware, been in a most deplorable condition, though at the time of writing there are a few signs of encouragement that the end is near. This morbid dullness is naturally causing much distress to investors, and to those who have pinned their faith in the future of this wonderful gold field. The persistent manner in which the shares have been getting from bad to worse has naturally made them greatly despondent, and has engendered intense anxiety in their minds. It is not surprising, therefore, that they are seeking, with much eagerness, to know the causes and the reasons of this state of affairs, and are also seeking from those who cannot, of course, give them much enlightenment, an opinion as to when it is likely to come. The causes of this depression have been enumerated, criticised, and answered in a circular which Mr. ALAN STONEHAM has addressed to the shareholders,

of one or two of the leading West Australian companies, and the immediate effect of this has been to relieve their anxiety and restore their confidence in the future of the market. But it would be hazardous to forecast how long this will last. The first cause he gives is the delay in obtaining crushing returns from many of the mines, and pertinently answers that this is always inevitable in a new country. It is, of course, most unreasonable to expect crushing returns before mines have been thoroughly developed, and the machinery erected. But a great number of shareholders are so unreasonable as to look for returns almost from the commencement of operations, and it is high time they were aware that a little patience must be exercised. The second cause is the delay in obtaining dividends from mines which have commenced crushing, upon which Mr. STONEHAM remarks that this also is inevitable unless the eyes of the mine are picked out for the purpose of making early dividends. This is a reasonable answer, though we think that more than one company ought to have paid dividends before now, and, therefore, there is some justice for the impatience of investors who have been disappointed in their expectations. The third cause he cites is the inability of machinery on certain mines to accomplish all that was expected of it, consequent upon the lack of water, skilled labour, or other facilities. To this Mr. STONEHAM replies that it has happened in one or two cases, but the difficulties are rapidly disappearing, that large supplies of water are daily being tapped, and that mines which during the past year have been only able to keep 10 stamps at half time will now be able to keep 20 stamps at full time. We think that in this statement Mr. STONEHAM is somewhat too sanguine, though, of course, there is little doubt that some of the favoured mines will early overcome the difficulties with which they had to contend. But, unfortunately, it is not the case with a great number of mines, which will have to wait a long time before they can get sufficient water to enable them to keep a large plant in constant work. Another cause is the fact that certain machinery, of which great things were expected, has failed to come up to expectations. This is true, notably in the case of Hannan's Brownhill. But here the difficulties are being remedied, and additional plant is being erected to suit the requirements of the ore. This is not a matter, therefore, for any great anxiety, as it is a difficulty which can always and often speedily be overcome, more especially as it is one which is inevitable on all gold fields, irrespective of their richness or permanence. The fifth cause is the one which should cause the most anxiety, and which is, perhaps, one of the most powerful influences creating doubt in the minds of many would-be investors. This is the pinching out, or reported pinching out, of some of the veins of well known reefs. Upon the rumours of this pinching out, of course, we need not dwell at length, but it is a well-known fact that reefs in more than one property have pinched out, and it is a circumstance which has done not a little injury to the Western Australian gold fields. But Mr. STONEHAM does not look upon this as one of much importance, seeing that the number of reefs that have pinched out is surprisingly small considering the numerous mines that have been exploited. As examples of pinching out he cites the Trenton, Premier, Lady Loch, Mawson's, and Great Fingall. As regards the first two he is informed that the reef had pinched, but on further sinking was found again, and is proving as wide as before. As regards the Lady Loch he says he is credibly informed that no pinching out has occurred, the explanation being that crushing was begun too early and insufficient development had been carried out. As to Mawson's the reef was cut out by a bar of dolomite, but this being passed through the reef has been found to be larger and better than ever. In Great Fingall the reef has been again found, and from the cases of these four he argues that the conditions are likely to be similar in other mines. The last cause he gives are the difficulties of transport and communication. We all know this is inevitable in the case of a new gold field, and that it is one that only time and labour can overcome. In the case of Western Australia these obstacles are being energetically and quickly removed, and in a reasonable time the country will be traversed by railways and telegraphs. Thus Mr. STONEHAM thinks there is absolutely no cause whatever for the nervous feeling which has taken hold of investors consequent on the depression which has affected in the West Australian market. Far from seeing any cause for this discouragement, he thinks there is every justification for encouragement—an opinion from which probably a great many will differ. We quite agree with him that the present is a most favourable opportunity for purchasing shares at a price much below their intrinsic value, and to pick up holdings in those companies which have overcome their initial difficulties, and are in a fair and promising way to success.

MOUNT LYLELL.

THE success which has been attained by Mount Lyell, together with its magnificent prospects, has been and is a theme of favourable comment. Its destiny to take rank amongst the greatest copper producers of the world is assured, and if we would believe some enthusiasts it is destined, also, to be one of the largest dividend payers. Of course, this does not necessarily follow, and it would be unwise for anyone to invest in the company upon such a certainty. But, unless a very serious misfortune should overtake it, it should earn very large profits, and should consequently be in a position to distribute big dividends to the shareholders. Its future is as assured as the future of any mining company can be, and more assured than the vast majority of them. In the colony, where it can easily be inspected by those on the spot, it has won universal admiration, and its detractors are exceedingly few. Victoria, at any rate, has a very great enthusiast in the person of Mr. MACNAMARA RUSSELL, M.Inst.C.E., who has given vent to his feelings in a volume which is distinguished for the mass of information within

its pages, its beautiful and artistic illustrations, and its elaborate plans and sections. The book is published by EFFINGHAM WILSON, Royal Exchange, E.C., and it will be a matter of surprise to us if it does not come into immediate and general favour. The author does not confine himself to the great Mount Lyell, but also treats of the Lyell group of mines, amongst which, he thinks, several are very promising. The book gives a very interesting history of the mine, followed by a description of its present condition and prospects. The remainder of the work is taken up with reports upon the property by eminent experts, along with which appears the famous report of Dr. E. D. PETERS, jun., accompanied by a photo of this eminent gentleman. The author of the work, as we have already hinted, has a very high opinion of the future of the mine, and he supports that opinion by what he calls "a few up to date facts"—the latter is throughout a very favourite word of his—but as these facts or figures are mostly theoretical we will content ourselves with giving our readers the nature and tenor of them. The foundationary fact is that the pioneer smelter, which is the first of the series of ten which are to form the complete working plant, is now in constant blast. Its first run was for a period of 24 days, during which period 2588 tons of average grade ore were smelted. The gross products of this smelting were:—Copper, 142 tons, equal to 6 p.c. per ton of ore; silver, 10,682 ounces, equal to 6½ ounces; gold, 398 ounces, equal to 3½ dwts. The mining and smelting charges amounted to 19s. 9d. per ton of ore; further costs (including treatment of matter, shipment to and realisation in Europe) 12s. 3d. per ton, or a total debit of £1 12s. per ton. The gross value of the products of this smelting he puts at £9975, from which, after deducting the total gross mining and all other charges, amounting to £2555, there remains a profit of £5834, equal to £2 5s. per ton of ore smelted. This is equal to a daily profit of £225, or £78,750 in 350 days. He then goes on to argue that if one smelter will earn this sum, ten will earn £780,750, which means very handsome dividends. But, though logically correct, shareholders must not look to such profits with feelings of assurance, for many circumstances may arise which will materially modify them. At any rate, there is here a solid foundation upon which to build hope and encouragement, and if success be not equal to our author's forecast, it should at least be satisfactory and gratifying.

Neither will the shareholders have to wait very long before the ten smelters are erected and in working order. The No. 2 smelter is ready to blow in as soon as sufficient supplies of coke can be delivered, whilst preparations for the erection of three other smelters are also well forward. Mr. RUSSELL thinks that these five will in all probability be blown in early next year, and the remaining five at the close of 1897. The vital question, of course, is, how long such a career of success is likely to last, for, after all, people do not care to invest in a mine which is destined to a short existence. All the experts who have examined the mine are unanimous in giving to the mine a long life, and one which will equal, if not surpass, the lives of its great rivals in other parts of the world. Basing his calculations on the justifiable assumption that about 100 cubic feet of average grade ore in the mine weigh 1 ton, and that up to the present the ore body has been opened up by the various tunnels, drives, crosscuts, winzes, and shafts for a total length south-west to north-west of 1100 feet, to an average width of 250 feet, and to an average depth of 400 feet, there are 11,000,000 tons of ore in sight down to the insignificant depth of 500 feet. Estimating that each of the 10 furnaces will treat 100 tons per day for 350 days, 35,000 tons of ore will be smelted per annum, and it will, therefore, take 31 years to dispose of this immense quantity of ore. But, of course, they will sink to a far greater depth than 500 feet, and should the ore not diminish in quantity for another 500 feet the mine would have a life of 81 years. These are our author's figures, and we give them for what they are worth. They are highly plausible, and if they should happen to be a little exaggerated there is sufficient evidence, at any rate, that the mine has a very long and prosperous career awaiting it.

CANADIAN MINING IN LITTLE.

THE exhibition spirit is certainly now abroad among the nations, and its latest development has occurred in Canada. There are palpable evidences now in London that the mines of the Canadian provinces in general—and of Kootenay in particular—are on the ascendant with British investors, and that a new spell of active exploitation awaits them in the early future. With the view of strengthening and justifying this accession of favour a proposal is now on foot for the establishment of an early date of a mining exhibition at Montreal. To this end a terse and pointedly worded circular has been showered among the members of Parliament and men in authority, with the result that the public at large are now familiarised with the idea, and are awaiting with interest its realisation in an actuality of bricks, mortar, and specimens. As we understand it, the plan is for none of those fleeting festivals of military bands, search-lights, and fairy lanterns, which, like fireworks, are brilliant while they last, but, at bottom, smoke. The exhibition is to be a permanent one, and to be faithfully and completely representative of Canadian products in the mineral direction. It will, in fact, be a sort of reflection in little of the whole Canadian industry; and there are certainly few countries which could furnish a choicer array of valuable and interesting specimens. It is pointed out in the printed circular that, while the Canadian mineral output is almost immeasurably below that of the United States, the more northerly country can boast of deposits as large and as rich, if not more so, than those of its neighbour—a fact which shows that all Canada requires more capital for development, and—to the end that she may obtain it—a greater interest awakened in her behalf among European people, and especially among the British nation, who, whatever their other faults, are not generally supposed to be backward in helping their fellow-subjects living in

CHEMISTRY IN MINING.—In the course of his speech inaugurating the second International Congress of Applied Chemistry, Professor Berthelot observed that during the last 25 years chemistry has transformed the mining art by the methodical discovery of new explosives, by the rigorous, theoretical, and practical measurement of their relative force, and by fixing the rules which should prevail over their use. In the metallurgy of iron, steel, and gun metal, also, methods and processes have been changed under the impetus of chemistry. To the metals known during the last 700 years are now added those of aluminium, molybdenum, and tungsten, the future and possible destinations of which it would be presumptuous to limit. The methods by which the new and ancient metals are prepared are now undergoing unexpected changes under the influence of the united theory and practice of chemists and physicists. Electricity, which has given rise to more general and more radical changes in chemical methods, is now employed under two forms—electrolysis and electric heating—deduced alike from physical and chemical laws. Electrolysis works both by the wet and dry way, the former having created electro-metallurgy, while the latter triumphs especially in the preparation of the metals. Finally, the electric force is utilised in the production of metals and other alloys the combined effort of electric polarisations and the high temperature, still almost unknown, which electricity now affords.

(From Messrs. Henry R. Merton and Co.'s Circular for September, 1896.)

STOCKS IN ENGLAND AND FRANCE:—	Oct. 15, 1896.	Sept. 30, 1896.	Sept. 15, 1896.	30TH SEPTEMBER.		
				1895.	1894.	1893.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Liverpool and Swansea, Chili Bogs	24,138	24,336	24,398	40,149	31,732	29,167
" " Chili Bogs	169	171	174	451	826	—
" " Chili Ores and Regulus (fine)	27	—	—	2	25	193
" " other Stuff (fine)	†3,247	3,343	3,834	5,177	6,548	4,660
London (including landing)	1,844	1,573	1,525	2,463	5,191	5,086
Stocks of fine Copper in Havre, Rouen, Bordeaux, and Dunkirk	1,002	1,166	1,138	1,151	962	4,598
	30,427	30,569	31,069	49,393	48,284	43,704
ADVISED FROM CHILI by mail and Cable, Fine Copper	2,400	2,400	4,100	2,400	2,900	3,400
" " AUSTRALIA by Mail and Cable, Fine Copper	1,250	1,100	1,100	1,050	850	800
	31,077	34,069	36,269	52,843	52,034	47,904
Price of Chili Bars and G.M.B.'s, per ton... ..	£46 15 0	£47 15 0	£48 0 0	£46 7 6	£41 10 0	£41 17 6

† Including 875 tons English Cakes.

MURCHISON NEW CHUM GOLD MINES (LIMITED).
The ordinary general meeting of the shareholders in the Murchison New Chum Gold Mines (Limited) was held on Tuesday, at the Cannon-street Hotel, when Mr. O'S. B. Roade, who presided, in moving the adoption of the report and accounts, said the production of gold had amounted to 9777 ounces—a handsome result from a 10-stamp battery; but, unfortunately, this prosperous state of things ceased when the development work at the deepest level revealed the fact that the rich chuto they had been relying on pinched out. Considering a change in the management was desirable, the board appointed Mr. Williams as mine manager, and since then working expenses had been considerably reduced. With regard to the future prospects of the company, the development and exploratory work which was now being carried out had been attended with a fair amount of success. In addition, the directors had acquired another lease, known as the New Chum East, which, judging from the report from the manager, would, no doubt, prove a valuable acquisition to the company's property.—Sir Charles Craufurd seconded the motion, and it was agreed to.—A vote of thanks to the Chairman and directors concluded the meeting.

SALISBURY-MURCHISON GOLD MINE (LIMITED).
The second ordinary general meeting of shareholders in the Salisbury-Murchison Gold Mine (Limited) was held on Tuesday, at Winchester House, E.C., when Mr. John B. Bull, the Chairman, in moving the adoption of the report and accounts, remarked that the amount spent on developing the Agamemnon property had evidently been well laid out. The result of the trial crushings had been 29 ounces from 48 tons and 51 ounces from 50 tons, while the assay value of the tailings was given at 5 dwts. and 2½ dwts. respectively. The Salisbury Mine had not proved so successful, although the trial crushing made of 136 tons last May yielded 174 ounces, with 14 dwts. of tailings; this grade of ore was of no great extent. A crushing of 55 tons of ore from the Tasmanian lease yielded 24 ounces. Since those crushings a considerable amount of fresh ground had been opened, and instructions had been given for a further trial crushing of the ore to be carried out. The manager, in his monthly report, dated September 5, estimated that he had 6000 tons of 1 ounce ore in sight.—Mr. T. Pyke seconded the resolution, and it was carried.

APPANTOO GOLD MINING COMPANY (LIMITED).
An extraordinary general meeting of the shareholders in the Appantoo Gold Mining Company (Limited) was held at Winchester House, E.C., on Wednesday, for the purpose of considering the subject resolution:—"That the directors be and they are hereby authorized to sell the undertaking, assets, and property of the company to any other company or persons who may be willing to purchase the same for such price in money or shares or other interest in any purchasing company or firm and on such terms as the directors may think fit, but so that after providing for payment of the debts and liabilities of the company there shall remain a sum of not less than £20,000 in fully paid up shares of any purchasing company for distribution among the shareholders of the company in the proportion of one share in such purchasing company for every four shares in this company."—The Chairman (Mr. A. G. Kitching), in moving the resolution, explained that owing to several unfortunate mishaps at the mine their working capital had been exhausted, and it was thought that this would be the best means of providing more money. It was beyond all doubt that the property was a valuable one, and they believed that a new company with a working capital of not less than £20,000 would, with proper management, place the mine on the dividend-paying list.—Mr. Labouchere seconded the resolution, which, after a short discussion, was carried *nom. con.*, and the meeting terminated with a vote of thanks to the Chairman.

The statutory meeting of the shareholders in the New Coolgardie Gold Exploration and Finance Association, W.A. (Limited) was held on Wednesday, at the Institute of Chartered Accountants, Mortgage-place, E.C., Mr. J. L. Strain presiding.—The Chairman read the principal business they had in hand might be described under three heads—exploration parties, water rights, and town allotments in Norseman. Two exploration parties had been equipped, and their efforts were, from what they had heard, meeting with great success. One party was exploring the Dundas district, and the other was looking over the ground in the Niagara district. —A vote of thanks to the Chairman concluded the meeting.

TUI OLD MINES (LIMITED).
The statutory meeting of the shareholders in the Tui Gold Mines (Limited) was held on Wednesday, at 8, Old Jewry, E.C., when the Chairman (Lieut.-Colonel Oughton 'Giles') stated that the sum of £20,000 was set apart for working capital, and they had received a telegram informing them that the transfer of the property had been duly effected. Therefore, they were in possession of what they considered a valuable mine, which was already sufficiently opened up to keep a 40 head stamp well running.—Mr. George Drexham said two or three specimens he took when he visited the mine contained 2 ounces of gold and 140 ounces of silver per ton approximately.—A vote of thanks to the Chairman closed the meeting.

MONTANA MINING COMPANY (LIMITED).
The ordinary general meeting of the shareholders in the Montana Mining Company (Limited) was held on Wednesday, at Winchester House, E.C., Mr. Thomas Phillpotts presiding. In moving the adoption of the report, the Chairman stated that the income accruing from the realisation of produce in the half-year ended June 30 last had amounted to £67,878, or £19,928 less than in the previous half-year. This was owing to the impairment of the south ore bodies. On the other hand, the expenditure under the heads "charges at the mine" and "permanent improvements" had been £54,929, against £36,667 in the previous half-year. The net result was that the profit at the end of June last left them £11,478 to deal with, in addition to the sum of £8662 brought forward, and they had thus been enabled to pay dividends of

£8214 each on April 15 and July 15 last, and to carry forward £1712. They had been taken to task by some of their shareholders for paying these dividends in existing circumstances, but, as the money had been fairly earned, he believed they had rightly interpreted the wishes of the majority in what they had done. The amount of their cash capital, after providing for all expenditure up to June 30 last, practically remained intact, and was represented by £22,433, and, in addition, there was the uncalled capital of 1s. a share, being £32,856 more. Their financial position was, therefore, strong. Unfortunately, their expectations had not been realised; but, so far from attributing blame to the management, they sympathised with Mr. Bayliss and his staff in the disappointment which those gentlemen felt in finding that their efforts had not met with the success they had expected.—The resolution was seconded, and, after a long discussion, was carried.

The first annual meeting of the shareholders in Adler's Consolidated Mining and Land Corporation (Limited) was held on Wednesday, at the Institute of Chartered Accountants, 1, Moorgate-place, E.C., Mr. W. H. Adler presiding.—The Chairman, in moving the adoption of the report, congratulated the shareholders upon the results obtained during the first year of their existence, and upon the generally healthy and sound condition of their affairs. They would see from the profit and loss account that they had a balance of £30,479, out of which they recommended the payment of a 10 per cent. dividend, carrying forward the substantial balance of £9179. This result was really achieved in six months, for, as a matter of fact, they did not commence work in earnest until March last. Their total expenditure bore the proportion of 12½ per cent. of the gross profits earned, not an excessive amount. On the shares issued for working capital they made a profit of £50,800, which they had placed in reserve to form the nucleus of a reserve funds. They had no debts. Taking their mining investments, as a whole, they were worth to-day fully as much, if not more, than at the time they acquired them. If there was depreciation in one, there was more than a corresponding appreciation in the other. They had a cash balance exceeding £41,000, and if they added to that the amount of their investments and loans they had cash and liquid assets equal to nearly three-fourths of their issued capital.—Mr. John Brinton seconded the motion, which was agreed to.

AFRICAN GOLD RECOVERY COMPANY LIMITED.
The adjourned ordinary general meeting was held on Thursday at Cannon Street Hotel. Mr. C. M'Culloch, who presided, stated that the prolonged litigation in the South African Republic respecting the validity of the Company's patents ended, so far as the trial of the case was concerned, in April last. Judgment was, however, reserved, but it was expected that the decision of the Judges would be given when the Supreme Court resumed its sittings next month. The litigation was started more than two years ago at the instigation of certain representatives of the mining interest, who, through a nominee, called on the Government to permit them to initiate an action for the rejection or cancellation of their patents. No expense had been spared by the plaintiffs to establish their case, and he regretted to say that, notwithstanding the exercise of every possible economy, the expense on the Company's side had been very great. The balance of the unissued shares not taken up by the shareholders had been placed at a premium of 5s. per share. In view of the gold developments in Western Australia the Company had purchased several properties there which, it was believed, would prove to be of considerable value. So soon as a substantial amount of work had been done on them, and it was found that they could be recommended as mining ventures, it was proposed to form a company to deal with them. In Africa they had abandoned some of their properties, sold others at a substantial profit, and acquired new interests of a promising character. Their revenue from royalties for the past year was not more than half what it was in the preceding twelve months. The profit from the treatment of tailings also showed a reduction, the explanation being that for more than a year past all the mines had erected cyanide plant in conjunction with their other machinery for treating their own tailings. As a consequence, practically no more tailings were dumped and purchaseable, and he was afraid they must look on this item of profit as likely to disappear from their accounts in future. He then moved the adoption of the report. Sir Charles Crauford seconded the motion, which was unanimously agreed to.

WHITE CLIFFS OPAL MINES LIMITED.

The statutory meeting of this company was held on Thursday at the offices, 8 Princes Street, E.C. Mr. E. S. Revett, the chairman, said: The company, as you are aware, was incorporated on June 16 last, and, the necessary capital having been subscribed, the allotment took place on June 29. Before that date, however, our managing director, Mr. Tweedy, had sailed for the colony in order to take charge of and look after our interests. The legal formalities in connexion with the transfer having been completed, on August 19 Mr. Tweedie was able to take possession on behalf of the company, and since then active work has been carried on at the mine. Mr. Tweedie is doing all in his power to open up and develop your property. On Monday last we had a cablegram from him to say that he had made the first shipment of opal. Although this is a small shipment, yet in the opinion of the directors, the amount realised by its sale will more than cover all the expenses of working the mines up to date, which, I think, is a highly satisfactory position for the shareholders of the company to be in. If you consider, too, that he has accomplished a task like this and got out the opal within four months of the company's inception and within two months of the transfer of the property, you will admit that we have not only reason to be satisfied with the progress made, but that we have every reason for thinking that the encouraging reports of the different experts as to the value of the property, put before the shareholders, will be realised at no distant date. Another reason for congratulation is that, unlike most companies, the White Cliffs Opal Company has not to incur any heavy expenditure for preliminary development and machinery, as the mode of mining for opals is simply to sink and timber the shaft as you go.

the opal being found in layers, as in the specimen I have here. Mr. Hasluck, one of our directors, is one of the authorities in the opal trade, and he is perfectly satisfied with our prospects and the ability of our mines to place high-class opal on the market. For the extraction of the opal nothing was required in the way of mill or crushing plant. Instead of being obliged to carry on development work for many months, as most gold mining companies were obliged to do, and then to erect costly mills for the reduction of the ore, this property was practically a going concern, opal being taken out from almost the first day of the company starting work on the ground. The work was mostly pick-and-shovel work, and no crushing plant would ever be required. A vote of thanks to the chairman concluded the proceedings.

NOTWITHSTANDING the efforts made by two or three brokers by means of circulars and letters expressing their good opinion of copper, and advising their friends to buy (the advice taking effect in some cases), to bring about an advance in the market, the market has continued continuously, and has touched £16 13s. 9d. this week, slight reaction then taking place. The price of G.M.B.'s is still ridiculously low compared with other sorts, so that for the correct idea of the value of copper one has to look—not at the price of G.M.B.'s, but at that of refined and manufactured sorts, relatively to which the G.M.B. price is still about £2 per ton too dear. The course of the speculative market from day to day was follows:—On Monday sales of cash G.M.B.'s, induced by the expectation of a further advance in the Bank rate, depressed the value of that position to £17 2s. 6d., whilst the contango on copper months improved, owing to sellers of cash taking in quantities of forward copper against same. On Tuesday spot touched £17, and three months £17 7s. 6d., whilst on Wednesday the two positions receded to £16 16s. 3d. and £17 7s. respectively. Thursday's market was quite active at lower values, cash touching £16 13s. 9d., and three months £17 2s. 6d., and to day, after business at £16 13s. 9d. s.c., and £17 1s. 3d., three months, the market rallied to £16 16s. 3d. s.c., and £17 7s. 6d. s.c., three months, closing firm at £17 2s. 6d. s.c. £17 7s. 9d. s.c., and £17 13s. to £17 11s. 3d., three months. Like has been done in America at 10½ cents this week.

The movement of recovery which set in at the close of last week has developed this week into a rapid advance; the result of increased interest shown by speculators, as well as of a certain amount of covering by bears. On Monday spot Straits was done at £56 2s. 6d. to £56 5s., and three months at £56 17s. 6d. On Tuesday there was an improvement of about 2s. 6d., whilst Wednesday witnessed a further rise to £57 12. 6d. s.e. and £57 7s. 6d. three months. On Thursday the rise continued s.e. touching £57 5s. and three months £58, whilst Friday morning brought a jump to £58 2s. 6d. spot and £58 17s. 6d. three months. In the afternoon, £58 2s. 6d. s.e. and £58 17s. 8d. three months, were paid, the market closing strong at £58 2s. 6d. to £59 5s. s.e. and £58 17s. 6d. three months. On Monday the market was again strong, with a further rise to £59 10s. s.e. and £59 10s. three months, closing this morning at 31½ d s.e. and 35 d three months, with Bornea at 35½ d.

The Glasgow market opened steady at 46s. 5d. cash, and 42s. 4d. was accepted later in the day, but this was followed by a strong advance to 47s. 3½d. s.e. The market closed firm at 47s. 2½d. s.e. and 47s. 5d. a month. Homeiste closes at 48s. 4½d and Middlesbrough at 33s. 11d. Shipmen's last week amounted to about 4500 tons, or about 1000 tons less than in the same period of last year.

Lead.
The week has been a dull one in this market, with limited demand, and the close is flat at £11 to £11 1s. 6d. soft foreign and £11 5s. to £11 7s. 6d.

Quicksilver
Is steady at £16 12s. ordinaries, and £16 15s. specials.

The following are to-night's (October 16) prices of metals:—

		Copper		£ s. d.		£ s. d.
Tough oak and ingot .....	...	...	...	48 0 0	.....	59 0 0
Best selected .....	...	...	...	49 11 0	.....	59 12 0
Electrolytic Copper .....	...	...	...	50 5 0	.....	52 5 0
Sheets and sheathing .....	...	...	...	.....	.....	57 0 0
Fiat bottoms .....	...	...	...	.....	.....	60 0 0
Chili bars .....	...	...	...	47 3 9	.....	47 11 3
Good merchantable ... spot, & 2 months respectively	...	...	...	---	.....	0 0 3½
Copper tubes, seamless .....	...	...	...	---	.....	0 0 3½
Alloys						
BRASS : Wire .....	...	...	...	-----	.....	0 0 6
" Tubes (solid drawn) .....	...	...	...	-----	.....	0 0 7
" Sheets .....	...	...	...	-----	.....	0 0 6½
PHOSPHOR BRONZE : Alloys II., ...	...	...	...	---	.....	---
" " III. or ... Cog Wheel Brand .....	...	...	...	---	.....	81 0 0
" " VII. ....	...	...	...	---	.....	83 0 0
" " XI. ....	...	...	...	---	.....	73 0 0
" " Vulcan brand A1 .....	...	...	...	---	.....	72 0 0
DURO METAL .....	...	...	...	---	.....	73 0 0
BIGLE METAL .....	...	...	...	---	.....	65 0 0
Ferrobronze (Vivini's)						
Ingot .....	...	...	...per lb.	0 0 8½	...	---
Ordinary shafts, pipes, bolts and bars .....	...	...	...	0 0 7½	...	---
Screw bolts and nuts .....	...	...	...	0 0 8½	...	---
Pump rods, plain .....	...	...	...	0 0 7½	...	---
" finished .....	...	...	...	0 0 10½	...	---
DELTA METAL : No. 4 (per ton) .....	...	...	...	---	.....	---
" Sheets and plates (per lb.) .....	...	...	...	---	.....	---
" Bars, round, square, flat (per lb.) .....	...	...	...	---	.....	---
" hexagon (per lb.) .....	...	...	...	---	.....	78 0 3
Tin						
English, Ingots, f.o.b. ....	...	...	...	61 0 0	.....	62 10 0
" Bars refined .....	...	...	...	63 0 0	.....	63 10 0
" refined .....	...	...	...	64 0 0	.....	64 10 0
Straits, spot, and three months respectively .....	...	...	...	58 5 0	.....	58 17 6
Australian, spot, and three months respectively .....	...	...	...	59 12 0	.....	60 2 6
Banca (In Holland) .....	...	...	...	---	.....	59 2 6
TIN PLATES : Charcoal, best quality ... per box	...	...	...	0 14 0	.....	6 13 0
" ordinary .....	...	...	...	0 11 0	.....	6 13 6
" Coke, best quality .....	...	...	...	0 10 0	.....	6 10 6
" ordinary .....	...	...	...	0 9 9	.....	6 9 9

The prices of tinplates are f.o.b. at Swansea; of Liverpool &c. bar weight.

[illegible]

		Lead												
Spanish or soft foreign		000	000	000	000	000	000	11	0	0	0000	11	2	0
English pig, common		000	000	000	000	000	00	11	5	0	0000	11	7	0
10	L.B.	000	00	000	000	000	000	000	00	00	0000	11	15	0
10	sheet and bar lead	000	000	000	000	000	000	0000	0000	0000	0000	12	6	0
10	pipe	000	000	000	000	000	000	0000	0000	0000	0000	12	0	0
10	red	000	000	000	000	000	000	0000	0000	0000	0000	14	0	0
10	white	000	000	000	000	000	000	0000	0000	0000	0000	17	0	0
10	patent shot	000	000	000	000	000	000	0000	0000	0000	0000	14	15	0

		Spelter					
Silesian ordinary brands	000	000	000	000	—	00000	18 10 0
special brands	000	000	000	000	—	00000	15 15 0
English Swanses	000	000	000	000	—	00000	17 5 0
Sheet Zinc	000	000	000	000	—	00000	19 10 0

Antimony	29 0 0	29 10 0
Plaske, 75 lbs. warrants Ore, c.i.f. U.K. ports	6 12 0	6 12 0
1st quality, 50 per cent. and upward	0 11	0 11
2nd 47 per cent. to 50 per cent.	0 13	0 11
3rd 40 per cent.	0 9	0 11

Aluminium		Per lb.	Per lb.
98-99½ per cent.	000 000 000 000 000	0 1 4	0 1 6
Nickel		0 1 2	0 1 4

ROYAL COLONIAL INSTITUTE.—The opening meeting of the 29th session of the Royal Colonial Institute will be held on Tuesday.

November 10, at the Whitehall Rooms, when Mr. Lowie, M.P., will read a paper on "Inter-British Trade." Papers have also been promised by Sir Harry Johnston, K.C.B., on "British Central Africa;" Sir Sidney Shippard, K.C.M.G., on "The Administration of Justice in South Africa;" and Dr. D. Morris, O.M.B., on "The Future of Tropical Colonies." Mr. Chamberlain, M.P., Secretary of State for the Colonies, has accepted an invitation of the Council to preside at the anniversary banquet on Wednesday, March 31 next.

	2 3	2 9	2 3	2 9	1 0	—	1 0	160,000	India	6-7, Queen-street
	15 15	15 15	15 15	15 15	1 0	—	0 18 0	238,370	Burma...	Buffalo House & Co.
Balaghat Mysore G	2 3	2 9	2 3	2 9	1 0	—	1 0	160,000	India	6-7, Queen-street
Burma Ruby..... G	15 15	15 15	15 15	15 15	1 0	—	0 18 0	238,370	Burma...	Buffalo House & Co.
Champan Reef..... G	7 5	7 5	7 5	7 5	1 0	1/8 Aug. 13 '91	1 0	811,445	India	6-7, Queen-street
Oniar Central	1/6	1/6	1/6	1/6	1 0	—	1 0	800,000	"	Dashwood & Co.
Coromandel..... G	2 5 15	2 5 15	2 5 15	2 5 15	1 0	—	1 0	120,000	"	6-7, Queen-street
Cold Fids Mysore G	15 15	15 15	15 15	15 15	1 0	1/- July '92	1 0	227,000	"	6-7, Queen-street
Kadur Mysore.....	6/6	7/	7/	7/6	5/	—	0 5 0	4,000 0	India	Capital House & Co.
Kempinkote Gd Pd	1/6	2/	1/6	2/	1 0	—	0 4	575,110	"	6-7, Queen-street
Mysore	8 1/2	8 1/2	8 1/2	8 1/2	1 0	6/ June 25 '91	1 0	246,254	"	13, Capital Avenue
Harnball	7/8	1/8	—	—	1 0	—	0 18 0	100,067	"	6-7, Queen-street
Heels	7/6	8/6	8/	8/	1 0	—	0 19 0	100,000	"	4, Old Water St.
West (N) G	9 5	15 15	15 15	15 15	1 0	rt. Jan. 16 '91	0 19 0	127,408	"	6-7, Queen-street
Wynad G	9 5	15 15	15 15	15 15	1 0	rt. Jan. 16 '91	0 19 0	127,408	"	4, Old Water St.
N. B. B. G	3 1/2	3 1/2	3 1/2	3 1/2	1 0	—	0 3 0	250,000	"	6-7, Queen-street
Nundvudro..... G	3 1/2	3 1/2	3 1/2	3 1/2	1 0	2/- June 26 '91	1 0	200,000	"	—
Ooregun (Dr. O.) G	3 1/2	3 1/2	3 1/2	3 1/2	1 0	2/ July 15 '91	1 0	145,000	"	—
(10 % Pref.)	2 3/4	2 3/4	2 3/4	2 3/4	1 0	4/ July 15 '91	1 0	67,011	"	—
(10 % Pref.)	2 3/4	2 3/4	2 3/4	2 3/4	1 0	4/ July 15 '91	1 0	12,989	"	—
Pannang Sabang T	1/8	1/8	1/8	1/8	1 0	—	0 5 0	200,000	Malay Pn.	14, Jeffrey's & Co.
Corp.....	8/	10/	8/	10/	1 0	—	0 5 0	200,000	Mysore...	6-7, Queen-street
Yenrakonda..... G	1/	1/8	1/	1/8	4/	—	0 5 0	187,491	"	—

AUSTRALIAN AND NEW ZEALAND MINES—(Continued).

SOUTH AND CENTRAL AMERICAN MINES.									
Anglo-Chilian Pl'N	8½ 8½	8½ 8½	10 0	7/0 Feb. 27 '96	10 0 0	30,000	Antofagat.	123, Bishops-st. W	
" 8% RylstMB	94 93	91 96	100 0	6% July 1 '96	100 0 0	2200,000	"	"	
Argen. Concessions	7/3 7/3	7/3 7/3	2/	—	0 2 0	150,000	S. Luis ...	3 & 5, Queen Street	
Cayiloma.....S	¾ 1	1½ 1½	2 0	1/- Apr. '94	2 0 0	125,000	Pacu	52, Leadenhall st.	
Colorado Nit. ....N	¾ 1	¾ 1	5 0	2/6 Dec. 16, '95	5 0 0	32,000	Chilli	12, King-st., Liverp	
Colombian Hy...G	¾ 10 ¾	¾ 10 ¾	1 0	1/- Jy 20, '95	1 0 0	75,000	Colombia	10, Blomfield-stree	
Copiapu.....f	2½ 2½	2½ 2½	2 0	2/ May 29, '96	2 0 0	100,000	Chilli	Dashwood House, E	
Darien "A".....G	5½ 6	6 6½	1 0	—	1 0 0	49,553	Colombia	Manchester.	
" "B".....G	7 7½	7½ 7½	1 0	new Apr 29 '96	1 0 0	30,000	"	"	
El Callao .....G	¾ ¾	¾ ¾	5 0	9¼d. Feb. '94	5 0 0	257,600	Venezuela	9, Bishops-gt.-st. W	
Frontino & B...G	1½ 1½ xd	1½ 1½	1 0	31. Oct. 15 '94	1 0 0	129,662	Colombia	184, Gresham Hou	
Glenrock .....G	1 1/8 1/8	1/ 1/8	1 0	—	1 0 0	199,948	Arg. (& I.)	3-5, Queen-street, E	
Guadalupe .....GS	3/8 5/8	—	1 0	—	1 0 0	180,000	Honduras	14, Union st. Old Br	
Javn'1 .....G	1/8 2/8	7/8 1/8	2/-	—	0 2 0	105,769	Nicaragua	139, Cannon-street.	
Lagunas .....N	2½ 2½	1½ 2½	5 0	15p.c. Dec. '94	5 0 0	120,000	Tarapaca	3, Gracechurch st;	
Leaturo .....N	5½ 5½	5½ 6	5 0	5/- June 26 '96	5 0 0	110,000	Chilli	70,	
Liverpool .....N	7½ 8½	7½ 8½	5 0	15/- May 11, '96	5 0 0	22,000	"	Liverpool.	
London Nit.....N	2 2½	2 2½	5 0	3/4½ Nov. '85	0 0 0	16,000	"	9, Gracechurch-st.	
" Nit.(Prof.)	3 4	3½ 4	5 0	8 Nov. 29 '91	5 0 0	22,000	"	"	
New Julia.....N	—	—	—	—	—	—	Tarapaca	50, Lime-street, E	
" Tamarugal ..N	1½ 3½	1½ 3½	1 10	1s. Dec. '94	1 10 0	130,000	"	"	
" 5% Cum Intef	5½ 5½	5½ 7½	1 10	8 p.c. Feb. '95	1 10 0	130,000	"	"	
" 5 p.c. Dobs ...	7½ 8½	7½ 8½	100 0	6 p.c. Feb. '96	100 0 0	2260,000	"	"	
Orita .....G	7/8	—	1 0	1/- April '89	1 0 0	30,000	Colombia	10, Blomfield-stre	
Ouro Fresto ....G	—	—	5 0	1/- Feb. '96	1 0 0	80,000	Chilli	6, Queen-street-pl	
Pao. & Jaspampa N	¾ 1	¾ 1	5 0	4/- May, '95	5 0 0	72,000	Tarapaca	3, Gracechurch-st	
Phoenix	1/- 1/6	1/- 1/6	10/-	—	0 0 0	400,000	S. Luis ...	3 & 5, Queen Street	
Rosario .....N	4½ 5½	4½ 5½	5 0	3/- Aug. 13 '96	5 0 0	120,000	Chilli ...	7½ Old Broad-str	
" (5% Deb.)	102 103	102 105 xd	100 0	5% Oct. 1 '96	100 0 0	2475,000	"	"	
" Hu'r Db Corp	103 110	103 108	100 0	5½ July 1 '96	100 0 0	2200,000	"	"	
St. John del Rey G	¾ ¾	¾ ¾	1 0	w.rts Nov 19 '95	1 0 0	327,630	Brasil	Finsby, Ho., Bim'd	
San Donato ....N	¾ 1¼	¾ 1¼	5 0	2/6 May 24 '95	5 0 0	39,000	Chilli	12, King-st., Liver	
" Jorge .....N	4½ 5xd	4½ 5½	5 0	5/ Oct. 15 '96	5 0 0	75,000	"	9, Gracechurch-st	
" Pablo .....N	1½ 1½	1½ 1½	5 0	5/- Oct. 30 '96	5 0 0	32,000	"	Dashwood House	
" Sebastian ....N	¾ 1½	¾ 1½	5 0	2/ July 15 '96	5 0 0	29,000	"	"	
Santa Barbara ...G	¾ ¾	¾ ¾	10/ 1/3 Dec. '86	0 10 0	60,000	Brasil	Liverpool		
" Elena .....N	¾ ¾	¾ ¾	5 0	5/- Nov. 15 '94	5 0 0	22,000	Tarapaca	3, Gracechurch-st	
" Rita .....N	3½ 3½	3½ 4½	5 0	10/ May 29 '96	5 0 0	22,000	Chilli	Dashwood House, E	
Tollima "A".....S	5½ 5½	5½ 5½	5 0	5/- Mar. 17 '96	5 0 0	14,000	"	19, Finsbury-circu	
" "B" .....S	4 4½	4 4½	5 0	5/- Mar 12 '96	5 0 0	5,000	"	"	

LATEST FROM THE MINES.

CABLEGRAMS AND TELEGRAMS.

ALASKA MEXICAN.—Cablegram from Alaska reports the clean-up for the month of September, as follows:—"Period since last return 80 days, bullion shipment \$21,258, ore milled 12,996 tons, sulphurets treated 129 tons, of bullion there came from sulphurets \$5374, working expenses for period \$17,017."

BENDIGO CONSOLS.—Copy cable received: "The 900 feet south level (lode) now 15 inches. Specks of visible free gold; a valuable prospect, having well-defined walls. The direction of the lode is north-west 10°."

BLAGROVE'S FREEHOLD.—The directors have received the following telegram from the manager, viz.:—"Shaft has been sunk 5 feet for week. Crosscut has been driven 11 feet. Drive north shows specks of visible free gold. There are good prospects."

BLOCK B. LANGLAAGTE ESTATE.—Production for September (by cable):—"Mill. Stamps running 75, ore crushed 7922 tons of 2000 lbs., gold retorted 1971 ounces.—Tailings, cyanide process. Tons treated 4730 tons of 2000 lbs., gold recovered 500 ounces.—Concentrates, cyanide process. Tons treated 204 tons of 2000 lbs., gold recovered 350 ounces. Total gold recovered 2821 ounces."

BRILLIANT CENTRAL.—The following cablegram from the head office in Charters Towers has been received:—"The Brilliant Central Gold Mining Company, no liability, have made a call of 3d. per share, payable in Charters Towers on or before Tuesday, the 5th January, 1897. All shares on which this call shall not have been paid within 28 days from the said date, will be forfeited under the no liability clauses of the Companies' Act. The last day for payment being January 31."

BRILLIANT AND ST. GEORGE UNITED.—The following cablegram from the directors in Charters Towers has been received:—"Have crushed during the month 1278 tons of quartz for a yield of 2365 ounces of gold. Have declared a dividend of 9d. per share, payable on the 22nd inst. The approximate value of this return is £8200."

BRITISH BROKEN HILL.—Cable advice received Oct. 12:—"Crude ore jigged, 14 days, to October 8 3800 tons, producing 1300 tons of concentrates, containing 816 tons of lead and 19,000 ounces of silver."

BROKEN HILL PROPRIETARY.—28,559 tons of ore were treated for the four weeks ending 15th instant, and the output from refinery was 409 ounces of gold, 646,086 ounces silver, 1500 tons lead, 50 tons antimonial lead, and 242 tons matte, containing 44 tons copper and 27,936 ounces silver. Buyers' quotation in Melbourne for Broken Hill Proprietary Company's shares on 16th inst. was £2 9s.

CONSOLIDATED MURCHISON.—2300 tons tailings, produced 325 ounces of gold; extraction 85 per cent.

CAYLOMA SILVER.—A cable has been received from the manager at the mines reporting:—"September production 26,000 ounces fine silver in export ores and 9250 ounces fine silver in bullion."

CROWN REEF.—Cablegrams received from Johannesburg:—"Output for September. Yield in smelted gold from 120 stamp mill 6955 ounces. Yield in smelted gold from 120 stamp cyanide works 4182 ounces. Yield in smelted gold from slimes works 331 ounces. Total 11,468 ounces.—Working results for September. Number of days working 120 stamp mill 29 days 14 hours. Crushed by 120 stamp mill 16,298 tons. Yield in smelted gold from 120 stamp mill 6955 ounces. Yield in smelted gold from 120 stamp cyanide works 4182 ounces. Yield in smelted gold from slimes works 331 ounces. Total 11,468 ounces.—Working expenditure and revenue. 120 stamp mill, cyanide works, and slimes works, 16,298 tons milled. To mining, transport, milling, cyanide, treatment of slimes, general charges, maintenance, and mine development £22,781. To profit for month £15,557—£38,338. By gold account 6955 ounces from 120 stamp mill £23,755. By 4182 ounces from 120 stamp cyanide works £13,424. By 331 ounces from slimes works £1159—£38,338. Revenue per ton crushed £2 7s. 0-55d. Cost per ton crushed £1 7s. 11-47d. Profit per ton crushed 19s. 1-08d."

DURBAN-ROODEPOORT DEEP.—The following cable message has been received from the head office:—"A reef has been struck in the second shaft having an average thickness of 8 inches. Assays average 3 ounces 5 dwts. per ton of 2000 lbs."

FERREIRA.—Copy of cablegram received from head office, Johannesburg:—"Profit for last month (September) from all sources £30,364."

EAGLEHAWK.—The following cablegram has been received from the mine, dated Maldon, October 14:—"Recommencing sinking of shaft at 100 feet. Depth sunk during the past week is 14 feet. The strike is nearly north and south—everything looks encouraging."

GELDENHUIS ESTATE.—Copy of cablegram received from the head office, Johannesburg:—"Last month's (September) profit was £1700."

GOLDEN ARROW.—The mine superintendent reports by cable October 14:—"Mine looking well. Ore in underlie shaft is improving as it goes down, yielding 5 ounces of gold per ton. The width of the reef is 2 feet 3 inches. The main shaft has been sunk 316 feet."

GOLCONDA.—A cablegram has been received from the mine manager as follows:—"Old well water supply increased to 140 gallons per hour. New well 55 feet deep, making 25 gallons per hour. Have commenced another."

GREAT BUNINYONG ESTATE.—At the alluvial shaft 13 feet has been sunk, full depth 287 feet. Ground at foot fair working sandstone. Cable received on October 10:—"Pumping contracts have been completed."

GREAT BOULDER PROPRIETARY.—Crushing returns for the fortnight ending October 12: 709 tons crushed, yielding 2137 ounces of gold.

GREAT EASTERN COLLIERIES.—The profit for last month was £3860.

GLENCAIRN MAIN REEF.—The Johannesburg Consolidated Investment Company announces receipt of the following cable from the above company:—"Production for September, 3486 ounces, 100 stamps, 22 days."

HANNAN'S REWARD.—Adverse rumours having been circulated in the Stock Exchange concerning this company, the board cabled to their manager for information, and the following cable was received:—"There is no truth in the rumour that the lode has pinched out. Lode at No. 2 level (200 feet) looking well, although low grade ore; the pyrites assay 1 ounce 6 dwts. per ton, 15 per cent. The board desire to add that further sinking has been stopped for the present at the No. 3 level (312 feet), there being 47 feet of water above the plat, and pending the erection of machinery."

HANNAN'S LODGE.—The following cablegram, dated October 11, has been received from the company's managers, Messrs. C. J. McCulloch and Co., Kalgoolie:—"Have been occupied since surface work. No. 3 shaft, 92 feet, have commenced crosscut so as to connect with the No. 1 shaft. Crosscut is in 16 feet. The lode stuff consists of decomposed

schist with branches of quartz. Present appearance most encouraging.—Connolly."

HANNAN'S VIRGINIA.—The following cablegram has been received from Messrs. Parker and Parker, the solicitors to the company in Perth, W.A.:—"Empress India leases have been transferred to company." The certificates for shares in this company will be ready for delivery on and after the 21st inst. in exchange for the allotment letter, the receipt for the sum paid on allotment and the old share certificate."

HARQUAHALA.—Cabled results of tailings treated at Harquahala (Arizona) for the month of September:—"3667 tons of tailings treated—bullion yielded, \$9457; expense on revenue account, \$5781; profit for month, \$3676; at \$4-90 to £ sterling, \$750."

HAURAKI.—The directors have received the following telegram from the manager, viz.:—"Total amount crushed (four weeks), 300 tons; ounces of gold, 2085; approximate cost, £1750; profit, £4700."

HOLMAN'S LUCKY HILL.—Cablegram received from Sydney, dated October 12:—"Good progress is being made. Main shaft is down 50 feet. Have commenced erecting machinery. Dam for reservoir and building—i.e., manager's residence and office—have been completed."

IMPERIAL WESTERN AUSTRALIAN CORPORATION.—Cablegram just received advises that 30 tons of ore crushed at Western Shaw Mines yielded an average of 5 ounces of gold to the ton.

JERSEY LILY.—The directors have received the following cable from the manager of the Jersey Lily Gold Mines, Prescott, Arizona:—"Hoisting engine started yesterday. It will take six days to get cleaned up. Shall be ready on next Monday to hoist ore. Shall commence sinking this week. Sump shows rich ore."

JOHANNESBURG CONSOLIDATED INVESTMENT.—This company announces receipt of the following cable information from Johannesburg:—"1. That the native strike is practically over.—2. That the New United Main Reef Gold Mining Company have struck the south reef on the 450 feet level. Width of reef 1 foot, assaying 2 ounces to the ton."

KAPANGA.—The directors have received the following telegram from the manager, viz.:—"940. We think this lode will yield an ore body of considerable value, showing pieces of quartz very rich in free gold. The workings promise to develop large ore bodies. 1000 crosscut to the south-east extended 8 feet, to the north 10 feet. 900 crosscut to the east 10 feet. We are getting a little gold from the stopes in the 420. Corby shaft has been sunk 3 feet."

KATHLEEN GOLD.—The directors have received the following telegram from the manager, viz.:—"The main shaft is down 195 feet. The country rock is favourable."

LONDONDERRY.—The following cable has been received from the manager, Mr. R. S. Black, dated Londonderry October 14th:—"The main shaft is down 320 feet; quartz coming in from the east, in all probability main reef. Gold bearing quartz better quality than east level."

LONDON AND WESTERN AUSTRALIAN EXPLORATION.—Extract from cablegram re Mount Magnet Proprietary:—"100 feet level. Opened up strong chute of ore 72 feet long. Reef is 3 feet wide, assaying 2 ounces 5 dwts. per ton by fire assay; face looks very well; dump, 250 tons, assaying 3 ounces per ton by fire assay."

MAWSON'S REWARD CLAIM.—The following cablegrams have been received:—"Water plentiful. Have struck first class ore north level, new shaft. The mine continues to improve." "No. 3 shaft, level north, driven 58 feet. Reef still continues to carry visible gold all through. Have commenced to drive on the lode at a depth of 61 feet. Driving north and south for a distance of 50 feet for the purpose of testing reef at this depth, at the same time will obtain good milling ore. North shaft 87 feet, the level is in ore for a distance of 44 feet. The vein is well defined, gold well distributed through the ore. Unlimited supply of water for milling purposes. Have secured water rights. Now draining lake by opening up canal 8 chains in length. Engine, stamp heads, boilers are erected."

MAY CONSOLIDATED.—The following cable message, dated Johannesburg, 8th instant, has been received:—"The yield of gold during September was 3700 ounces from 12,250 tons crushed. Mill running 27 days. Cyanide, 1950 ounces from 9250 tons; total for month, 5650 ounces."

MENZIES ALPHA LEASES.—Cable information to the following effect has been received from the manager:—"D shaft. The size of the reef is 2 feet 6 inches. The value is 4 ounces 5 dwts per ton."

MILLS' DAY DAWN UNITED.—This company has received the following cablegram from the head office in Charters Towers:—"Have crushed during the month 450 tons of quartz for 419 ounces of gold." The approximate value of this return is £1450.

MOUNT MORGAN (Queensland).—Results for the month of September: Tons chlorinated 10,585, gold returned 12,068 ounces.

MOUNT ZEEHAN SILVER-LEAD (Tasmania).—The following cablegram has been received from Hobart, dated 14th inst.:—"Silver Queen section, No. 8 lode, No. 3 level north lode, 24 inches wide, carrying 4 inches solid galena. No. 3 level south lode 12 inches wide, with same quantity of solid galena."

MONASTERY DIAMOND.—Cable advice, received 15th inst., states:—"240 loads yielded 30 carats."

MOUNT HEPBURN.—The following cable has been received from the mine manager, Mr. E. W. Spain, dated October 13:—"Week's assays average 4 ounces 5 dwts. per ton."

MOUNT REID.—The following cables have been received from the mine manager during the week, viz.:—"October 12: "No. 3 trench, have cut ore vein 1 foot in width, 20 feet on the east of lode No. 1. Sample assays, gold 1 ounce 6 dwts., silver 89 ounces per ton."—"October 13: "New discovery, prospects excellent. Sample assays, gold 3½ ounces, silver 162 ounces per ton."

NEW QUEEN.—Cablegram, dated Charters Towers, Oct. 10, giving result of crushing for past fortnight:—"No. 5 formation 1270 feet, 70 tons yielding 34 ounces gold. Have drawn on you for £300. Vertical shaft 5 feet through formation; a vein of quartz underneath extent at present unknown; sunk straight shaft 30 feet during fortnight." A later cablegram, dated Charters Towers, October 12, has been received:—"Good reef 2 feet thick in sinking, good quality, formation still continues."

NIEKERK (Klerksdorp).—The manager has forwarded to the board assays by Mr. G. E. B. Frood, of Klerksdorp, certifying samples from No. 3 shaft as 2 ounces 2 dwts. 9 grains, and 2 ounces 17 dwts. 9 grains.

NEW COMET.—The Anglo-French Exploration Company (Limited), as London agents for the New Comet Gold Mining Company (Limited), have received a cable from Johannesburg to the effect that the crushing for last month was as follows:—"Number of tons crushed, 7030; number of ounces recovered from mill, 1759; number of tons treated by cyanide, 5354; number of ounces recovered from cyanide, 1289; total number of ounces recovered, 3048."

NEW MODDERFONTEIN.—Returns for September:—"Crushed 10,144 tons, yielded 2132 ounces; cyanide, 994 ounces 3100 tons of the ore crushed was poor dump."

NEW ZEALAND CROWN.—The value of the bullion obtained from the September crushing is estimated at £2017.

PALMAREJO.—Return for September: Crushed 2100 tons, worked 2000 tons, producing \$43,500, expenses \$34,000.

PAMBULA.—Extract from cable received by the Pambula Gold Mines (Limited), dated 10th current:—"Two tons rich ore bagged; bulk assay 61 ounces 13 dwts. per ton. Rich ore going underfoot 90 feet level." A further cable dated 13th the shaft at a depth of 184 feet."

PHENIX (Tipperary Mine, New Zealand).—The following cablegram has been received from Mr. W. J. Stanford, dated New Zealand, October 12:—"I have started crushing, prospects are good."

PRINCESS ESTATE.—Result of working for September: Crushed, 4178 tons; gold won, 1996 ounces; extracted from tailings, 510 ounces; total, 2506 ounces.

ROBINSON.—Production for September: By cable, "Mill, 120 stamps at work, 14,045 tons of ore crushed, yielded 11,595 ounces. From concentrates (by chlorination) 863 ounces, tailings (cyanide process) 2557 ounces, slimes 929 ounces. From own ore 15,944 ounces. From concentrates bought (by chlorination) 3290 ounces. Total gold recovered 19,234 ounces. Profit for the month £35,000."

ROODEPOORT DEEP.—Result of last month's crushing: Battery ran 26 days, crushed 4200 tons, produced 1439 ounces over plates; 3360 tons cyanided producing 391 ounces concentrates, producing 216 ounces; total production for the month, 2036 ounces. Owing to necessary repairs to machinery the output has been comparatively small.

SPITZKOP FARM.—Cable from the manager states that he has shipped 241 ounces of gold. Under date Sept. 11 and 18, the manager writes that owing to the scarcity of native labour he cannot run the mill full time.

TRANSVAAL COAL TRUST.—The following cablegram has been received from the Head office at Johannesburg, as bearing on the company's operations for the month of September:—"Output 33,200 tons, profit £3500."

TREASURY.—The following cablegram has been received from the head office, namely:—"Profit September, £865."

UNITED NEW ZEALAND EXPLORATION.—The United New Zealand Exploration (Limited) have received the following cablegram from their general manager, Mr. H. A. Gordon, F.G.S., dated Auckland, October 14:—"Application refused to amend patent MacArthur-Forrest cyanide process. Notice of appeal has been given."

VAN RYN.—Production for September: 836 tons milled yielded 680 ounces; 1550 tons treated by cyanide yielded 407 ounces; total, 1087 ounces. This includes general clean up, from which possibly 100 ounces may be obtainable later on. We have not the slightest doubt that we shall commence crushing ore at the latest November 1.

VICTORIA ASSOCIATION (Charters Towers).—The following cablegram has been received at the London office:—"280 tons crushed yielded 341 ounces gold."

WATER TRUST, MINING, AND PUBLIC CRUSHING COMPANY OF WESTERN AUSTRALIA.—A cablegram, dated 15th inst., is to hand from the general manager announcing that Sir John Forrest, the Premier, accompanied by a large party, has just paid a visit of inspection to this company's works at Northam, W.A., where the 80 stamp mill, which will be the largest and most complete in the colony, is rapidly approaching completion. Ores from the gold fields are conveyed on the company's own trucks to the mill site, and will be crushed for the public at an inclusive rate.

WEST AUSTRALIAN (GOLD DISTRICT) TRADING CORPORATION.—The following cable has been received from the general manager of the corporation in Australia:—"Purchase completed Moylan's business Fremantle, embracing following agencies:—Gibbey's Wines and Spirits, Bass's Bottled Ales and Guinness's Stout, Bulldog Brand bottled by Porter, Apollinaris, Geisler Champagne, Bernard Scotch Ale, Miss Sherry, Antonio de Silver Port, all colony monopolies."

DURING September the Johannesburg Consolidated Investment Company received from South Africa from the various companies for which they are agents 19,141 ounces of gold, valued at £68,350.

CONYBEARE-STRAUSS.—On October 15, at the Theistic Church, Swallow-street, W., by the Rev. Charles Voysey, Charles Augustus Swallowt Conybeare, of Tregallow, Cornwall, to Florence Annie, eldest daughter of Gustave Strauss, Esq., of 2, Bolton Gardens West, South Kensington.

EXPLORATION COMPANY (LIMITED).

The first (or statutory) general meeting of shareholders in the Exploration Company (Limited) was held yesterday, at the Cannon-street Hotel.—Mr. R. Maguire, who presided, explained that the meeting was of a purely formal character. The present Exploration Company was only incorporated on June 19, and as it was proposed to close the books of the company on December 31, and to hold a general meeting of the company shortly afterwards, they would all agree that this was not a convenient time to review the operations of the company during the very short time it had been in existence. He was happy to say that the anticipations which were entertained of economies being effected by the amalgamation of the three companies, of which the Exploration Company was the result, had been more than justified. New and commodious offices had also been taken in order to accommodate the various agencies vested in the company. During the short time the company had been in existence the business they had transacted had been of a uniformly successful description, and he had no doubt that the shareholders would be quite satisfied with it when it was laid before them at the forthcoming meeting.—Subsequently, an extraordinary general meeting was held, at which a resolution was passed making certain alterations in the Articles of Association, in order to comply with the requirements of the Stock Exchange regulations.

THE AFRICAN GOLD PROPERTIES (LIMITED).

The second ordinary general meeting of the shareholders in the African Gold Properties (Limited) was held yesterday, at the Great Eastern Hotel, Bishopsgate-street, E.C.—Mr. F. C. Holland, who presided, in moving the adoption of the report and accounts, prefaced his remarks with a general reference to the South African market, which he considered to be unduly depressed, the gold mining industry itself never having been, in his opinion, in a more satisfactory condition than at present. The Johannesburg was over, and there was not likely to be a second attempt to steal a Republic. Even the rinderpest would not be an unmixed evil, since it would lead to the establishment of a more efficient system of communication, which in turn would have the effect of cheapening the food supplies. Coming more particularly to deal with the company's position, the Chairman passed in review the assets detailed in the balance-sheet, and concluded by appealing to the shareholders to support the board in the business upon which they were about to enter, saying that the hands of the board would be greatly strengthened. The report and accounts were duly carried, and the proceedings terminated with a vote of thanks to the Chairman and board.

NEPEAN GOLD MINES (LIMITED).

The first general meeting of this company was held on Thursday, at the Cannon-street Hotel. Mr. J. H. Chalmers, C.E., who presided, said:—You are aware that this company was formed for the purpose of purchasing two gold mining leases, having an area of 30 acres, and situated about 12 miles south of Barbanks in the Coolgardie gold fields, Western Australia. The property was not purchased without a very great deal of care being exercised in the matter; exhaustive reports were obtained from Captain Matthews, Captain A. P. Wymond, and Mr. G. R. Fearby. It was also arranged that Professor Nicholas, the well-known mining expert and consulting engineer of Barbanks' Mines, should visit our property and report thereon. The directors went to allotment on July 13 on what they considered ample working capital. They immediately secured the services of Captain Mark Pollard as manager—under the supervision of Captain A. P. Wymond—a mining engineer of wide practical experience. Work has been pushed on most energetically, and, in addition to the four shafts that had been started on the property when we took it over, two new ones have been sunk—namely, the prospecting shaft, which is situated in our main north lease, and what is termed the main shaft, situated in the Nepean lease. By cable to hand, we learn that the prospecting shaft has been sunk and timbered to a depth of 111 feet. In this shaft it is anticipated water will be struck when it has been sunk a further 30 feet. The main shaft we also learn by the same cable is down 109 feet; so that a considerable amount of work has been done considering the difficulties of cutting and carting timber for the purposes of the shafts. We anticipate the engine and the saw bench which has been ordered are by this time on the property, and in working order, and, consequently, will greatly facilitate progress where timbering is necessary. I may add that all the mining timber that is required can be cut on or close to our property. The reports I have referred to state that there are five reefs running through the property, and, in addition, it is most encouraging to find that the whole formation which has been cut through in sinking the main shaft carries gold. We shall, as soon as possible, arrange for a trial crushing of 100 to 500 tons of quartz from the various reefs, and the results will be duly circulated amongst you. In conclusion, I may tell you that our policy is to open up the three reefs by shafts and crosscuts until we have a considerable amount of ore ready for the mill, and, although our information as to how soon it will be wise to erect the mill is rather limited at present, we anticipate that we shall before long reach such a stage of development as will justify us in ordering machinery. We shall then erect a complete milling plant; but we deem it most essential that the mine should be fairly well developed before any orders for machinery are placed.—A vote of thanks to the Chairman closed the meeting.

BLACKETT'S GOLD MINES (LIMITED).

The statutory meeting of Blakett's Gold Mines (Limited) was held on Thursday, at Winchester House, Brigado-Surgeon Lieut.-Colonel Bensley presiding.—The Chairman said the financial results of the reconstruction had been to place the sum of £2000 at the disposal of the directors. Their work was being carried on rapidly, but they had two rather formidable obstacles to contend against—the one the need of water, the other the want of labour. With regard to the water difficulty, they could only hope for the best, but the directors did not despair of reaching sufficient for their requirements. They were satisfied that they had a valuable property containing a large quantity of payable ore.

STATE OF THE SKILLED LABOUR MARKET.

THE following memorandum has been prepared by the Labour Department of the Board of Trade for the Board of Trade Journal, and also (with additions) for the Labour Gazette:—
Employment in Various Industries.—Coal Mining. Employment in this industry in September was slightly better than in 1895 at the same period of the year. At pits employing 380,663 persons, an average of 4.89 days per week was worked in September, compared with 5.00 in August, and 4.80 in September, 1895. Unemployed miners in trade unions in Northumberland and Durham amounted to 12 per cent. of the membership at the end of September, as compared with 1.3 per cent. at the end of August, and 3.9 per cent. at the end of September, 1895.—Iron mining. Employment in this industry was good in September, and showed a slight improvement both as compared with the previous month and a year ago. The number of workpeople employed in the mines making returns was nearly 5 per cent. more than in September, 1895. Returns from 125 iron mines and open works, employing 16,310 workpeople, show that the average number of days worked by these mines during September was 5.78 days per week, compared with 5.58 days per week in September, 1895. In the pig iron industry employment at the end of the month showed a slight improvement compared with the previous month, and was considerably better than a year ago. At the end of September the iron masters making returns had 346 furnaces in blast, employing 22,240 workpeople, or 29 more furnaces and 101 more men than a year ago, and 2 furnaces and 188 men more than at the end of August. Employment at steelworks at the end of September was better than the previous month, and considerably better than a year ago. At 125 works making returns 35,278 persons were employed, as compared with 34,687 persons at the end of August, and 29,556 persons at the end of September, 1895. Employment at puddling furnaces and rolling mills has fallen off slightly. The number employed at 90 works was 17,731 at the end of the month, or 280 less than at the end of August. The number, however, was greater by 385 than a year ago. In the textile trade employment has fallen off somewhat. At the 88 works covered by the returns received, only 45 were giving full employment. Altogether 306 mills were reported as working at the end of September, as compared with 311 at the end of August. The engineering and kindred trades remain well employed, though there is a slight falling off when compared with August, the percentage of unemployed union members having risen from 2.4 in August to 2.9 in September. The percentage in September, 1895, was 5.2.—Trade disputes. The number of fresh disputes occurring in September was 51, involving about 9000 workpeople, as compared with 90 disputes involving about 13,000 workpeople in August, and 66 involving about 10,000 persons in September, 1895. Fifteen disputes took place in the engineering and shipbuilding trades, eight in the textile trades, five in the clothing trades, three each in the mining and quarrying, and in the miscellaneous metal trades, respectively, one in connection with dock labour, and five in the miscellaneous group of trades. Of the 47 new and old disputes, involving about 6700 persons, of which the settlement has been reported, 23, involving 4040 persons, terminated in favour of the workpeople; 10, involving 1332 persons, in favour of the employers; and seven, involving 372, in a compromise; the results of the remaining eight disputes, involving about 1000 workpeople, cannot at present be definitely classified.—Changes in rates of wages. During September changes in rates of wages, affecting 134,000 workpeople, were reported, nearly 26,000 receiving increases and 108,000 sustaining decreases. The estimated effect of all the changes was, however, an average advance of 1.1d. per week in the wages of the total persons affected. Over 4000 building operatives and 18,000 workpeople engaged in the engineering and shipbuilding industries received increases. The decreases included 100,000 coal miners and 7000 blast furnacemen, but the amount of the reduction in these cases was very small.

AFRICAN MINES' SEPTEMBER OUTPUT.

	GOLD.					S. pt.
	Apr. Ozs.	May. Ozs.	June. Ozs.	July. Ozs.	Aug. Ozs.	
Appantoo	—	376	226	117	—	—
Barrett	—	500	503	650	625	600
Block B	3,163	2,854	2,511	3,075	3,278	2,821
Boranza	—	—	—	—	3,803	4,002
Champ d'Or	3,360	3,383	3,074	2,969	3,698	2,729
City and Suburban	7,835	8,351	8,296	9,094	10,794	9,968
Crown Reef	11,498	11,369	10,723	11,011	11,867	11,168
Durban-Rodepoort	5,590	5,519	5,604	5,704	5,740	6,115
Eastleigh	2,155	1,650	1,850	1,750	2,250	2,500
Ferreira	12,219	13,115	13,418	13,601	13,600	13,820
Forbes Reef	102	67	—	115	127	97
Fraskop	222	204	180	236	161	255
Geldenhuis Deep	4,046	4,173	4,031	5,180	5,210	5,515
Geldenhuis Estate	6,139	5,897	6,889	7,319	6,368	6,305
Geldenhuis Main Reef	1,655	1,214	1,589	1,495	1,411	1,427
George Goch	4,362	4,660	3,740	3,708	3,831	3,872
Glencairn	1,175	1,018	1,015	1,084	1,112	—
Glencairn Main Reef	4,527	3,230	3,468	3,824	3,389	3,486
Henry Nourse	6,223	6,298	6,649	6,904	6,784	7,015
Joe's Reef United	227	294	227	219	248	—
Johannesburg Pioneer	2,613	2,810	2,826	3,064	3,149	—
Jubilee	2,485	3,059	2,502	2,812	2,951	2,652
Jumpers	4,202	4,935	4,077	4,960	4,854	5,514
Langlaagte Estate	9,002	9,428	9,131	9,253	10,199	9,697
Langlaagte Royal	—	3,182	3,704	4,304	4,068	—
Langlaagte Star	—	1,207	1,491	1,816	1,516	1,487
Libson-Berlyn	763	737	655	785	1,185	—
Lydenburg Mining Estate	5,404	6,163	5,770	4,911	2,544	—
May Consolidated	4,323	4,878	5,204	4,741	5,508	5,650
Mayer and Charlton	4,006	3,979	4,109	4,249	4,549	4,249
Minerva	1,379	1,453	1,856	1,654	1,329	—
Moodies	1,764	690	940	790	675	—
New Chimes	1,764	1,746	1,825	2,319	1,760	1,774
New Comet	—	—	—	2,488	3,042	3,048
New Crosses	2,441	2,772	2,454	2,577	2,633	2,102
New Heriot	6,011	6,033	6,014	5,961	6,024	6,011
New Midas	—	—	—	731	1,559	—
New Modderfontein	—	2,172	2,778	3,150	3,173	3,126
New Primrose	9,547	9,034	9,786	10,762	10,161	—
New Rietfontein	2,327	2,117	2,150	1,724	2,125	1,948
Nigel	2,001	2,026	2,274	1,990	1,850	2,067
Orion	—	897	—	—	—	—
Prem. Tati Monarch Reef	—	—	368	—	—	—
Princess Estate	1,671	2,072	2,274	2,432	2,714	—
Robinson	15,927	19,333	20,343	20,612	20,831	19,234
Rodepoort Deep	1,263	2,171	1,927	1,881	2,366	2,036
Rodepoort Gold	—	—	1,214	1,358	1,452	—
Rodepoort United M.R.	3,961	4,121	3,919	4,067	4,147	4,162
Salisbury	2,850	2,950	2,400	2,400	2,550	2,150
Sheba	10,340	10,024	8,589	8,100	8,005	7,066
Simmer and Jack	8,640	8,653	8,816	8,855	8,330	—
Spitzkop	—	—	—	83	—	241
Stanhope	960	920	1,100	1,103	1,050	—
Sutherland Reef	134	—	—	—	—	—
Tati Blue Jacket	—	—	328	—	—	—
Treasury	—	2,373	2,312	2,584	2,566	—
United Ivy Reef	649	570	700	685	—	—
Van Ryn	1,585	1,551	1,635	1,626	1,638	1,037
Wassau	—	315	398	626	663	716
Wemmer	5,597	5,148	4,636	4,891	4,511	4,753
Wolhuter	4,778	5,043	5,884	6,135	6,640	—
Worcester Exploration	2,444	2,444	2,819	2,431	2,476	2,239

DIAMONDS.

	Carats.	Carats.	Carats.	Carats.	Carats.
Kofffontein	4,750	3,700	4,150	4,400	5,050
COAL.					
Cassell Coal	26,500	18,500	24,000	27,000	28,733
Great Eastern	16,500	13,200	16,600	20,000	19,500
Transvaal Coal Trust	32,200	—	27,800	33,000	33,800

The following are the profits or losses (the latter being indicated by an *) made by South African mining companies:—

	1892.	1893.	1894.	1895.	1896.
City and Suburban	7,863	7,412	—	—	—
Crown Reef	16,324	15,787	14,134	13,154	15,649
Ferreira	—	28,158	30,286	29,464	28,574
Geldenhuis Deep	3,400	1,700	450*	2,400	3,956*
Geldenhuis Estate	4,800	2,800	6,500	7,200	3,600
Geldenhuis Main Reef	1,402	95*	1,554	721	409
George Goch	4,004	4,167	—	—	796
Glencairn	4,226	—	—	—	—
Jumpers	3,000	3,835	880	1,910	2,460
May Consolidated	2,088	2,888	4,376	2,915	4,533
Mayer and Charlton	4,010	3,225	3,701	4,771	4,391
New Heriot	11,160	8,916	—	—	4,066
New Primrose	5,321	3,800	6,594	10,307	8,486
Robinson	27,500	35,241	38,500	35,000	35,000
Rodepoort United	5,800	4,223	5,020	4,821	4,970
Simmer and Jack	11,463	—	10,216	12,906	11,826
Treasury	—	1,584	680	938	1,467
Van Ryn	70	720*	526*	1,792*	476*
Wemmer	7,263	6,145	3,909	4,950	8,063
Worcester	—	—	4,033	—	—

	COAL.	COAL.	COAL.	COAL.	COAL.
Cassell Coal	5,500	1,838	4,992	6,100	7,250
Great Eastern	—	1,500	2,200	3,200	3,800
Transvaal Coal Trust	—	—	2,200	2,700	3,100

INDIAN MINES' OUTPUT FOR SEPTEMBER.

THE output of the mines for September was 27,439 ounces, showing an increase of 700 ounces as compared with the preceding month, and an increase of 5937 ounces as compared with the corresponding month of 1895. The production in ounces since the beginning of 1892 has been as follows:—

	1892.	1893.	1894.	1895.	1896.
January	11,674	16,844	17,026	19,672	29,986
February	11,780	16,656	18,803	19,358	27,418
March	11,579	17,463	16,080	20,257	26,171
April	11,813	18,387	15,551	20,399	26,866
May	12,488	17,922	16,543	20,797	25,840
June	11,847	16,879	15,459	20,839	25,761
July	13,277	16,676	18,271	19,280	26,119
August	14,854	16,692	19,073	20,704	26,789
September	15,529	17,060	18,911	21,502	27,439
October	15,922	17,440	19,119	22,301	—
November	15,942	17,557	18,825	22,545	—
December	16,435	17,639	19,068	22,652	—

Total

	Apr.	May.	June.	July.	Aug.	Sept.
Mysore	8,969	8,845	8,955	9,038	9,133	9,328
Champion Reef	6,643	6,739	6,433	6,617	7,011	7,605
Oreogum	6,119	6,029	5,332	5,288	5,109	5,021
Nandydroog	3,563	3,571	3,589	3,803	3,918	4,080
Coromandel	452	580	620	710	720	810
Mysore W. and	—	—	—	—	—	—
Wynad	703	706	422	432	474	285
Balaghat	—	—	—	—	—	—
Mysore	331	268	306	211	237	182
Mysore Reefs	86	102	94	—	197	128
Total	26,866	26,810	25,751	26,119	26,739	27,439

GOLD MINING IN BRITISH COLUMBIA.

(Continued from page 1286.)

City of Spokane.

ALTITUDE, 3900; area, 20½ acres; title, Crown grant. Location, on the west slope of Monte Cristo Mountain, and east slope of Red Mountain, north of the Iron Mask, and ½ mile north of Roseland. Owner, the Lillooet, Fraser River, and Cariboo Gold Fields Company (Limited). Managing director, F. S. Barnard, Vancouver, British Columbia; secretary, E. A. Bennett, London, England; superintendent, D. McGirr, Roseland. On this claim a prospect shaft having disclosed the presence of ore, a tunnel 6 by 5 by 6½ feet in the clear is now being run easterly from a point near the centre of the claim, just above the road, and on a level with the tramway, 500 to 600 feet distant, and in the face of the tunnel 85 feet, is in a width of nearly 3 feet of solid pyrrhotite and iron pyrite, carrying some copper pyrites and gold, while on the north side more or less ore is seen for 15 feet back, the average value of which has not yet been determined (July 13). An air compressor plant, a 3 drill, 12 by 16 "Rand," bought of Fraser and Chalmers, Chicago, and one 45 horse power boiler will soon be installed at the mouth of the tunnel, which will then be rushed ahead vigorously to exploit this property, to determine the extent and grade of the gold ore now showing; and if favourable results are obtained a proper working shaft will be sunk, while transportation facilities, as shown above, will be excellent. A small stream of water close by will supply the compressor and boiler, while there is considerable wood suitable for fuel, but limited in amount for mine purposes on the property. So far, three houses for the men and superintendent have been erected. Number of men employed, 18.

Red Mountain.

Title, Crown grant, applied for. Location, south of Cliff Mine, and west of the City of Spokane. Owned by the Red Mountain Mining Company. Secretary, F. Lewis Clark, Spokane. Capital stock, 1,000,000 shares of \$1 each. Superintendent, B. Young, Roseland. Work is being now done on a fissure, along which at the surface as much as 3 to 4 feet of low grade pyrrhotite with some copper pyrites and sulphides have been found. A working shaft, 20 feet deep at time of visit, is being sunk, while about 350 feet east a tunnel 85 feet in length is crosscutting the country rock in search of the ledge that shows immediately above on the hill. Number of men, 10. Foreman, D. W. Peoples.

Cliff.

Area, 15½ acres. Title, Crown grant. Location, east slope of Red Mountain, 1 mile north of Roseland. Owned by S. M. Wharton, Geo. C. Wharton, Jno. R. Cook, et al, Spokane. General manager, S. M. Wharton. The well-defined lead on this claim is believed to run through the St. Elmo Consolidated, St. Elmo, and the Monte Christo. About the centre of the claim is a 45 foot shaft, full of water, with several tons of ore at the top, and below in the hillside several open cuts along the ledge from which there has been taken high grade ore. The lead can be easily traced through the claim, but the faults met with in the underground workings show plainly at the surface. In a tunnel 350 feet long, with 100 feet of crosscuts, there is for the first 90 feet solid ore, low grade, averaging 4 feet wide, then a slip throws the ore 20 feet to the north-west, the shaft then continuing for 65 feet, beyond which it is much broken up, and a small stringer of ore 2 to 10 inches wide is found running east and west, 100 feet lower down is tunnel No. 2, now being driven ahead with a machine drill. For 65 feet the tunnel is all in the coarse grained pyrrhotite that assays a few dollars in gold, with a fault of 5 feet to the north and the continuation of this shaft for 90 feet further, being in places 12 feet wide, but also low grade. Faults are now met with, beyond which the ore has not yet been found. At the upper or west end of the claim it is claimed the best ore has been found, and tunnel No. 2 will be run through to develop this ground. Considerable ore has been shipped, but so far it has proved to be of such a grade as left but a small margin of profit. At the engine-house are a 3-drill Ingersoll-Sargeant compressor and a 35 horse-power boiler. Number of men, 14. Strike of vein nearly south-west by north-east. Dip north-west 60° to 80°.

Immediately west of this claim is the St. Elmo Consolidated, Title, Crown grant. Owned by John R. Cook, S. M. Wharton, et al, not being worked. A shaft 48 feet deep and a tunnel about 60 feet long comprise the work done, and at the shaft a considerable amount of iron sulphides is piled up. West of this claim is the St. Elmo, already described; while north of these claims is the View near the summit of Red Mountain, owned by the Red Mountain View Company. President, W. S. Johnson; secretary, A. F. Corbin, Roseland. Capital stock, 1,000,000 shares at \$1. Title, Crown grant. A tunnel 48 feet long begins on a vein about 15 inches wide, and then runs south-west along a narrow width of ore that in the face of the tunnel widened to nearly 3 feet of mixed ore, or diorite pyrrhotite, and a good percentage of copper pyrites. This tunnel will be now advanced under the charge of Mr. W. S. Haskins, of the Jumbo Mine.

Average width of reef 6 inches, value 28'50 dwts. A portion still visible on the shaft. Main east drive driven this month 31 feet, total distance 630 feet.—Assay value.—August 3. Average width of reef 12 inches, value 1'38 dwts.—August 31. Average width of reef 27 inches, total distance 81 feet. Main west drive driven this month 42 feet, total distance 81 feet.—Assay value.—August 3. Average width of reef 27 inches, value 7'11 dwts.—August 31. Average width of reef 33 inches, value 7'34 dwts. August 31. Average width of reef, 36 inches, value 14'91 dwts.—Mill. During the month 60 tons of ore were put through the mill, which yielded 1778 ounces by treatment equal to 5'15 dwts. per ton, and 1284 ounces by treatment of the concentrates equal to 4'60 dwts. per ton, total gold won 3342 ounces.—Mechanics. During the month the boilers were thoroughly overhauled, consequently the operating of the week the boilers were thoroughly overhauled, consequently the operating of the week to stop work. A second skip road is being prepared for the main shaft to enable the cage to be done away with. The foundations for the permanent shaft for the engine shaft are being laid down.

WESTERN ANDES.—Advises dated August 19 states that the miners of the mines during July failed to reach the expenditures by about \$250 owing to the continued dry weather.

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AMERICAN.

- Copy of report

ger, Mr. E. R. Ge

AFRICAN.

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STATES.—A circuit court up to August

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REVIEWS.

The Mineral Industry: Its Statistics, Technology, and Trade for 1895. Vol. IV. Edited by R. P. Rothwell. (Simplified Publishing Company, New York.)

The annual volume of "The Mineral Industry" has by this time, the fourth year of its existence, made itself so thoroughly and so favourably known amongst all who are interested in mining and metallurgy that it needs neither description nor eulogy at our hands. Such a collection of facts and figures relating to the extraction and treatment of minerals has never before been brought together, whilst the mode of arrangement and tabulation of the various statistics leaves but little to be desired. We would like to express our regret that it should need nine months to produce this volume, which would be far more valuable in the first than in the last quarter of the year, and we would like to suggest that if even the statistical portion of the work were issued then, and the rest of the volume at a later date (supposing, that is to say, that it were found impossible to issue the whole volume at the earlier date) it would be a decided advantage, but are restrained from saying much on this score by the reflection that we in this country have but little right to complain when our own Government has only just managed to issue the mineral statistics for last year; perhaps the energies of all connected with the Governmental mining departments were concentrated upon the new amendments to the Coal Mines Regulation Act, but if so, we can only say that we could well have dispensed with the latter, provided that we had our mineral statistics in proper time. At it is, Great Britain makes a sorry show in this volume. Other countries that we are in the habit of considering as inferior to ourselves in the business capacities of their Governments have issued statistics of their mineral output during 1895, long before ours were ready for publication.

It is, indeed, surprising how well up to date this volume of "The Mineral Industry" is. Those who have had any experience in collecting mineral statistics, we will not say of a country, but even of a district, or of a single mine of any importance, can best appreciate this ambitious attempt to collect the mineral statistics of the entire world. We have examined the figures here given with some care, and though not free from error, they are, upon the whole, very fairly accurate. As a sample of the errors we have met with, we may instance the statement found (p. 300), that "Norway reports no gold." Now the official table of the mineral output of Norway regularly reports gold, whilst an English company—the Bromnes (late Orre) Company has been steadily mining and milling gold for some years past; it is true that the total output is not large, being only 500 ounces per annum, but it deserves to be mentioned, especially as it is one of the very few gold mines proper in Europe. On the other hand, we may complain at the omission of "The Mineral Industry" upon the excellent table he has drawn up of the world's gold production; the method here adopted of reducing the various returns of gold (as also of silver) to fine metal and reporting the latter deserves to be universally adopted. It would be a great improvement if this plan were to be employed in all Governmental statistics. The precious metal statistics are, for many reasons, of great interest at the present moment, and it is important to note that the world's production of gold in 1895 is here given as some 11½ per cent. greater than that of 1894, whilst the increase in silver for the same year is only 1½ per cent. The following figures show the percentage of the total gold output contributed by the leading producers during 1895:—

	23.1	per cent. of the total
United States	23.1	
Transvaal	21.2	
Australasia	21.1	
Russia	16.7	

82.1

Each one of these countries showed considerable absolute increase in the gold production of 1895, as compared with 1894, although this was most marked in the United States.

Another very interesting set of statistics is that of the world's production of copper, which is given as close on 340,000 tons, being a small increase (about 3 per cent.) on that of the previous year. More than the whole of this increase came from the United States, where just over one-half of the total copper output of the world is also produced, the Spanish mines, which are next in importance, producing one-sixth.

Besides its value as a storehouse of facts and figures concerning the mining and metallurgical industries of the world, "The Mineral Industry" also contains a large amount of scientific information of no mean value. Scattered through it are a number of articles by eminent authorities in their various departments, and every effort seems to have been made to obtain contributions from the leading engineers of the day. Thus, taking names almost at random, we find Sir Lowthian Bell writing on the blast furnace, John Fritz on the iron trade of the United States, A. J. Bowie on ditch construction, James Douglas on copper smelting in the United States, Dr. G. Lange on the German chemical industry, H. O. Hofman on the treatment of argentiferous lead ore, H. M. Howe on the corrosion of iron and steel, R. H. Richards on progress in ore dressing, Professors J. H. L. Vogt and J. F. Kemp on modern theories of the formation of mineral deposits, T. W. Sprague on electricity in mining, Dr. W. Borchers on electro-chemistry and electro-metallurgy, and R. W. Byrd on the mining laws of the United States. We would upon the mining laws of the United States, the obviously do not propose to review the whole of the contributions of this brilliant staff of writers within the limits of this notice, but hope in the future to discuss at greater length some of these articles which are likely to prove of special interest to our readers. Meanwhile, the list of names we have given is quite sufficient guarantee that the various articles are worthy of careful study, and that whether the views expressed are or not in every case to be implicitly accepted, they necessarily deserve close consideration. The editor of "The Mineral Industry" has at any rate endeavoured to lay before his readers the very best that was attainable in each department, and we cannot doubt that this volume will find an acceptance at least as ready, and a circulation at least as extensive, as have the previous numbers. It is only to be expected that such a publication as this will improve in some respects year by year, and whilst previous volumes have shown gradual successive improvement, this one is quite worthy, in this respect, of its predecessors.

The Detection and Measurement of Inflammable Gas and Vapour in the Air. By Frank Clowes and Boverton Redwood (London: Crosby Lockwood and Son.)

This is a small book that presents nothing of great novelty, but which forms a convenient summary of the work on which Professor Clowes has been engaged for some considerable time, and with which his name is closely associated, namely, the estimation of firedamp in air by the hydrogen flame test. Mr. Boverton Redwood contributes a chapter on the detection and estimation of petroleum vapour by the same method, using a modification of the apparatus originally devised by Professor Clowes. It is hardly necessary to say that any work of this

the back of 100 feet north level. Reef averages 2 feet. Average value 7½ dwts. In the 50 feet north slope the reef average is 18 inches, value 30 dwts. F shaft. Have continued stoping from the back of the 80 feet south level. Reef averages 18 inches. Assay value 2 ounces 18 dwts, 16 grains gold per ton. Stone raised 35 tons. G shaft. West crosscut driven 5 feet. Ground very hard, but hope to get into better in a few feet. No. 2 main shaft. Timbered and completed both pits at the 200 feet. Started to drive west. We shall start to sink again at once, and shall soon get into water. Crosscut east level, G shaft. Have continued stoping from the back of the 80 feet north level. Reef averages 18 inches, value 30 dwts. Stone raised 27 tons. Machinery. The masons have built in the foundations for the boilers, and we shall be able to get them into position as soon as they arrive. We have completed erection of winding engine on G shaft, and are putting up condensers for the exhaust steam. The team is engaged in bringing in timber for the battery. —Crushing. We are crushing from H O E and F shafts.

MENZIES CONSOLIDATED.—Information to the following effect has been received from Mr. Weekley, the manager at the mines:—Royal Group, Eve lease. North drive at the 100 feet level on the lode in the main shaft extended 10 feet. Lode 5 feet, worth 3 ounces gold per ton. Drive south-west. Lode faulted, in my opinion to the west. Started crosscut in that direction. We have got the cages and trucks to work in this shaft, and should speedily develop this section of the mine. May shaft. Total depth from surface 161 feet. Lode has passed out of the shaft to the west. We intend opening out at the 100 feet level and 100 feet level in this shaft. A shaft. Crosscut to the east at the 100 feet level extended 30 feet. S. L. shaft. Main shaft north level, 100 feet deep. General. Things generally on the mines are satisfactory. Fair progress is being made in the general development of this property. The condenser plant is being enlarged and other necessities attended to. The health of the camp is good.

MENZIES GOLD ESTATES.—Mine manager reports on September 5:—Aurelia. No. 2 shaft (Aspasia line) has not been sunk any since my last report, as the men have been engaged stripping the quartz struck in the hanging side mentioned in my report of last week. We have now stripped it for 27 feet in height, and when we drilled into it about 3 feet from the bottom of shaft, it proved to be a nice solid reef 18 inches wide, a sample of which assayed gold 2 ounces 3 dwts, 3 grains per ton. A sample taken 27 feet from bottom assayed gold 1 ounce 3 dwts, per ton. The lode now at this point is 6 feet wide, and I cannot say yet whether I have the hanging wall or not. This I shall know more about after the quartz is all taken down, which I hope to have done next week. The ground is very heavy and requires scouring. The 70 feet drive north is in 102 feet from shaft, making the progress in drilling for the week 14 feet. This level at present is being driven in lode formation, and the quartz (if any) is either on the hanging or foot wall side, which will be proved later on, as I am anxious now to push the drive forward for ventilation. —Cleone. The sinking of shaft on this lease has been slow owing to a hard bar of diorite having come in. This is highly mineralised, which would indicate our not being far from a reef. The present depth of shaft is 90 feet. —Etrenna. The different work on this lease is progressing satisfactorily. The timbering on top of main shaft is finished, and we are now in course of carrying the work down.

MILL'S UNITED.—Mine manager's report for fortnight ending August 22:—Underlie shaft sunk 15 feet, or 153 feet below No. 11 level. The sink is still in granite. No. 11 east drive 1 foot, or 34 feet from shaft. Formation 4 feet, with 18 inches of quartz of low grade. No. 1 level east. Intermediate level extended 9 feet, or 43 feet from mine. R. of 2 feet 6 inches, poor tone in face. Stopes show 2 feet 6 inches, good quality. No. 9 level. Hanging wall reef, stopes 2 feet, fair quality stone, improving as we near the No. 4 level.

MOUNT LYELL.—Engineer in charge of mine reports for week ending August 23:—No. 1 tunnel, north drive. Distances driven for week 2 feet, total 71 feet. Ore tunnel, no change. No. 3 tunnel, south drive. Drive extended 5 feet, total 21 feet. No change to report. No. 3 tunnel, main crosscut, north drive. Drive extended 7 feet, total 23 feet. No. 4 tunnel, south drive. Distance driven for week 6 feet, total 52 feet. No. 4 tunnel, south drive. No. 3 crosscut. Distance driven for week 2 feet, total 68 feet. No. 4 tunnel, south drive. No. 2 and 3 stopes. Ore stoped during the week. —Surface work. No. 1 bench. Stripping continued at this bench. No. 2 bench. Breaking of ore for smelters and stripping continued here. —N. 2½ bench. Stripping carried on here during the week. —Progress report for week ending August 23:—Smelting plant. No. 1 blast furnace in operation. Hot blast stove No. 1 nearing completion. Slag dump sliding. Formation in progress. —Converter plant. Plain corrugated iron on main roof, extending angle wall, excavation for foundation of blowing engine started. —Weather. Wet. —Railway engineer reports for week ending August 23:—Ballasting on the valley portions of the railway is in active progress, but has been considerably retarded by the wet weather and freight traffic. Good progress is being made with the Teepooka wharf and goods shed, and other buildings, and with the clearing of the converter siding.

MOUNT HOWE CONSOLIDATED.—The manager under date of September 9 reports as follows:—The drive east 100 feet level Regina shaft has been extended 12 feet, making a total distance from the shaft of 77 feet. Very little work has been done this week, owing to exemption having been granted for the first four days of the week for the opening of the Kalgoolie railway.

MOUNT ZEEHAN (Tasmania) SILVER-LEAD.—Manager reports for week ending August 23:—Silver Queen section, No. 4 shaft. Crosscut east extended 17 feet, making a total distance from the shaft of 102 feet. No. 2 level extended 2 feet on lode, when slide was met with. Ore north driving 6 feet have picked up hanging wall of same showing 3 inches of ore. Concentrator has been running on second-class ore from Zeehan-Mountana Company.

MOSMAN.—Mine manager's report for fortnight ending August 23:—Wyndham (underlie) shaft sunk 7 feet. The formation is small. No. 11 level south, Winas deepened 5 feet, making its depth 47 feet. The sink which is 10 inches, poor quality, appears to be improving. There are 4 inches of mineral above, apparently thickening.

NO. 7 NORTH-EAST QUEEN.—The following fortnightly report has been received from the mine, dated Charters Towers, August 27:—I beg to report that on the 19th inst. Penhallurick and party cleaned up 52 tons 2 dwts. for 141 ounces 6 dwts. 9 grains of smelted gold. Their stopes will average about 2 feet 6 inches of equal quality stone at present. Ferguson and party are still following the footwall endeavouring to pick up the same sort of stone. Wherry and party intend continuing their work next week. Hauled 35 tons of quartz for the fortnight. —John T. L. Williams.

OCTAGON EXPLORERS.—From mine manager's report on Union Jack (Hannan's), South drive from bottom of shaft. Driven 12 feet. The lode here shows very solid for a width of 2 feet 6 inches, and is chiefly composed of quartz. The stone carries a little free gold and a very fair percentage of iron pyrites. Bulk samples from which return an average of 25 dwts. of gold per ton.

OCTAGON EXPLORERS.—From mine manager's report on Tower Hill lease. No. 1 shaft. The drillings from the bottom of this shaft yield really good prospects of fine gold. I have obtained as much as 2 grains of gold from a 2 foot drill hole. No. 3 shaft. Prospects are also good from this shaft. I am pleased to say the reef, where opened by trenching and otherwise, is looking very well. —Later. From mine manager's report on Tower Hill lease. No. 2 shaft has been sunk a further depth of 5 feet, making a total of 13 feet from brack. Still raising good stone. The drillings show good gold all through by panning. No. 3 shaft has been sunk a further 5 feet, making a total of 15 feet from brack. The stone carries visible gold and fine gold. —From mine manager's report on Rejah lease. Have opened up trench where we got the good stone on the surface. We have raised some good stone showing coarse and fine gold freely in the stone.

RICHMOND CONSOLIDATED.—Coolidge property. The manager under date September 9, reports as follows:—The drive west at the 237 feet level Richmond shaft has been extended 3 feet, total 10 feet, and the drive east has been put in a further 3 feet, total 44 feet.

SOUTH MOUNT LYELL.—Report from Melbourne office dated September 9:—Works are being pushed along rapidly, possibly at a faster rate than on any other mine in the district, the country being of sandstone and conglomerate, interspersed with quartz leaders carrying copper pyrites, the water in the face and back very heavy. No. 2 tunnel on section 112° 51' is advanced to 37 feet, and the shaft on section 117° 51' further sunk 5 feet.

CURTIN DAVIS PROPRIETARY.—Mine manager's report for the week ending August 22:—420 feet level driven 5 feet, total 721 feet. Lode improving, now showing 2 feet wide of good ore on the footwall. It is not quite so fit as during the past 30 days, and appears to be straightening up to the usual underlie. The drive is carrying more copper pyrites and fine gold than it has had for some time past. Eastern crosscut driven 3 feet, total 25 feet. Country now more vertical, with small seams and joints running across the face, and is still nice looking blue slate rather better for working than it has been. Winas below this level sunk 5 feet, total 13 feet. Lode 2 feet wide of siderite, with good seam of fahl ore on the hanging wall. 593 feet level driven 9 feet, total 213 feet. Lode 2 feet wide, with a slight underlie to the west, carrying some high grade fahl ore and having good walls. —Winas. Have lodged up brack and erected windlass and sunk feet, total 7 feet. There is a nice vein of yellow copper against the hanging wall 9 inches wide, with a vein of galena lying against the copper ore. The lode in this winas is looking well, and the country is good for working. 630 feet level driven 3 feet, total 228 feet. This ore is much more compact and the walls better defined. There is 18 inches of ore against the hanging wall, principally copper pyrites, with some high grade fahl ore through it. The lode formation is 2 feet 6 inches wide, and keeps a regular course, the tunnel being almost straight. 641 feet level driven 6 feet, total 192 feet. Lode 2 feet wide of dense iron pyrites. Country getting more settled again, and face improving, with copper pyrites showing on walls. 1000 feet level driven 4 feet, total 50 feet. There is a well-defined fissure at the contact of the blue slate country on the footwall side, and conglomerate on the hanging wall. The country is getting more settled as the drive advances. Sampled 5 tons of seconds, assaying 43 ounces silver per ton, copper 8½ per cent. Assay. 680 feet level. Fahl ore 129 ounces 16 grains per ton silver, 9½ per cent. copper. —120 feet level. Fahl ore and 3 ounces copper pyrites 944 ounces 8 dwts. 16 grains per ton silver, 9½ per cent. copper. —160 feet level. Copper pyrites and carbonate of iron 18 ounces 18 dwts, 19 grains per ton silver, 5½ per cent. copper. —420 feet fahl ore, 151 ounces 2 dwts, 3 grains per ton silver, 18 per cent. copper. —630 feet level fahl ore, 777 ounces 7 dwts 20 grains per ton silver, 8 per cent. copper. —Extract from letter from mine manager, dated August 21. Since Mr. Knox left assays from the winas in the 420 feet level have given 914 ounces silver per ton and 9½ per cent. copper from 16 feet in the winas, and similar ore to the sample which Mr. Knox broke from 223 feet in the 380 feet, has given 797 ounces of silver per ton and 8 per cent. copper. These are by far the highest assays obtained from these levels.

DAY DAWN BLOCK AND WYNDHAM.—Mine manager's report for the fortnight ending August 22:—No. 17 level west. This level has been driven 9 feet, total distance 72 feet. The formation is about 13 feet wide, carrying 3 to 4 feet of solid stone, with leaders running through the remainder. The reef in the leading stopes will average 5 feet in thickness, worth (say) 18 dwts. per ton. —No. 17 level east. This level has been driven 6 feet, total distance 72 feet. The formation is diorite and is 12 to 13 feet wide, carrying three feet of quartz vein, one on the footwall about 18 inches in thickness, and two veins each 1 foot in thickness on the hanging wall. They seem to have a tendency to come together. The reef in the leading stopes will average 2 feet in thickness, worth (say) 1 ounce per ton. —No. 16 level west. This level has been driven 42 feet, total 125 feet. There is no reef.

In the face. A rise has been put up 22 feet, and holed through to No. 1 winas from No. 15 level west. —No. 16 level east. This level has been driven 5 feet. Total from shaft 391 feet, and holed through to Mill's United Company's No. 8 level. There are 18 inches of stone on the hanging wall, worth (say) 15 dwts. per ton. No. 2 winas has been sunk 8 feet. Total 59 feet. This is deep enough to intersect No. 17 level when driven far enough. There are 15 inches of fairly mineralised stone in the bottom. No. 3 winas has been standing, the contractors having been engaged driving a crosscut from the winas at a depth of 45 feet on a reef about 3 feet in thickness, showing very fair mineral. Sinking will be resumed next fortnight. The reef in the stopes will average 5 feet in thickness, worth 18 dwts. per ton. The Talisman reef will average 18 inches in thickness, worth (say) 1 ounce per ton. —No. 15 level west. No. 1 winas has been sunk 22 feet. Total depth 77 feet, and holed through to the rise. There is about 1 foot of rubble quartz in the bottom. —No. 15 level east. Reef (Day Dawn) near No. 1 winas will average 15 inches in thickness, worth (say) 14 dwts. per ton. Talisman reef will average 15 inches in thickness, worth (say) 1 ounce per ton. —No. 14 level west. The rise under No. 3 shaft has been put up 25 feet, total height 68 feet. There are about 15 inches of quartz (rubble) in the rise, and there is a vein of solid quartz on the bottom, which has not yet been broken into. The reef in the stopes above the level is about 10 inches in thickness, worth (say) 12 dwts. per ton. —No. 14 level east. Intermediate. A crosscut for the Talisman reef has been driven 18 feet. No. 13 level west. The reef in the stopes will average 18 inches in thickness, worth (say) 12 dwts. per ton. The crosscut for the Talisman reef has been driven 10 feet, total distance 39 feet. —No. 12 level east. This level has been extended 16 feet, total 221 feet. The reef in the end of the drive is about 13 inches in thickness. The reef in the stopes will average 2 feet in thickness, worth (say) 1 ounce per ton. —No. 12 level west. The rise has been put up 12 feet, total height 40 feet. The reef is 4 feet in thickness, worth (say) 14 dwts. per ton. The reef in the stopes will average 4 feet in thickness, worth (say) 12 dwts. per ton. —No. 4 level west. This level has been cleaned out. A contract has been let to sink a winas to meet the rise being put up from No. 10 level. —No. 3 shaft. The underlie has been sunk 6 feet on the work, total depth 1088 feet. There is no reef in the face.

NEW QUEEN.—The following fortnightly report has been received from the mine, dated Charters Towers, August 23:—The straight shaft has been cleaned out. Two stages have been fixed in position in Nos. 1 and 2 compartments, and the skips have also been removed. The No. 4 chamber in the vertical shaft has been secured by logging from the bottom of the shaft to the bottom of the frame set, converting chamber into a dam, which will hold between 300 or 400 gallons of water. The pump which arrived last Monday has been fixed in position, and is now pumping the water from the bottom of the No. 4 chamber up to the reservoir in the western level No. 3 formation. We commenced sinking to-day. Considerable delay has been experienced owing to the extra care taken to lay and make the sinking as free from water as possible, and I am pleased to say that during the past 15 hours the Nos. 1, 2, and 3 compartments have only made about 100 gallons of water. For the first few feet of sinking care will be required to prevent the dam from injury through firing. I hope to make fair progress with the sinking. —(Signed) W. Henderson.

LYANBOE.—Mine manager's report, dated Kalgoolie, 27th:—Middle level. Main shaft sunk, total 33 feet, ground barrier. Mullock par, between Nos. 5 and 6 stopes, sunk, total 15 feet, leaving 9 feet to connect with rise from 10 feet level. When this complete mullock from main shaft be carried here and sent direct to stopes. Water shaft, 200 feet level, south drive extended, total 22 feet. Lode 4 feet wide, heavy mineralised, and contains large percentage iron pyrites; water slightly increasing. When 15 head at work will probably sink shaft another 50 feet. Tramway from No. 5 shaft to battery completed during week. —West reef, 130 feet level. No. 9 shaft sunk, total 31 feet. In lode material carrying gold. —East lode 130 feet level. Taken ore from stopes to run battery during week. Owing to slimy character, had to mix with some second grade ore from water shaft. Winas in south drive 11 feet. Lode strong and reef, and shows fair gold. Started south drive on lode at 100 feet level, and shall cut through slide in 27 or 30 feet. Satisfactory progress made with erection machinery.

WAIHI GOLD.—Waihi, August 31. —R. Short, Esq., manager Waihi Gold Mining Company (Limited), Auckland. —Dear Sir, —Noting further has been done in bottom of No. 2 shaft at our last week, the men being engaged opening out No. 3 chamber. The first set of timber has just been fixed in position, and it will take from a fortnight to three weeks to complete the timber before reducing water to bottom again. Early crosscut has been extended 18 feet beyond the last 5 feet lode which was cut in this drive, so that I don't intend to extend the crosscut much further for the present. The crosscut mentioned in monthly report as being started at adit to intersect lode lately cut in Emily crosscut was only extended a few feet until the lode was found. The drive has now penetrated a very strong lode for 15 feet, and there was no indication of the higher water level. I believe this lode will prove to be 13 feet wide. It is composed of first-class quality ore for so far as intersected. On account of adit level having been extended 517 feet on what we have termed Welcome lode, I will have to call the new branch lately discovered at this level No. 2, and the old right hand branch No. 1. The point where intersected at this level is 314 feet west of new No. 2 shaft. I find that No. 2 branch strikes off to the right about 20 feet west of No. 2 shaft. Therefore, we have to commence at this point and drive a new level 347 feet to bring face on No. 2 branch home as far as has been driven on Welcome lode. (This point is upwards of 1500 feet from the western boundary of the mine.) While this is being done I propose to suspend operations on Welcome at western end, as I cannot very well carry on the two together, owing to a part of old drive having to be disconnected by the tram rails being pulled up. No. 2 branch will produce ore of good quality for the whole of the distance we have got to drive at adit level. I may also say that No. 1 level has been driven on No. 2 branch beyond junction, the Welcome being still to the south or left hand side. Owing to the two lodes having a slight dip toward each other, the junction will be found further west the deeper we go. —(Signed) T. Gilmore.

THE IRON AND STEEL MARKET.

The following is the Weekly Report of Messrs. BARRY, HEAD, and Co., dated October 15:—

TO-DAY'S APPROXIMATE BASIS PRICES, WITHOUT ENGAGEMENT.

	Price per ton.	F.O.B. at	Less discount.
IRON.—			
Superior Crown Bars ...	£5 10 0	Middlebrook ...	3
Common Bars ...	5 7 6	do ...	3
Ship Plates ...	5 5 0	do ...	3
Ship Angles ...	5 2 6	do ...	3
Single Sheets ...	7 5 0	do ...	3
Puddled Bars ...	3 10 0	do ...	nett.
STEEL.—			
Bars ...	6 0 0	do ...	3
Ship Plates ...	5 10 0	do ...	3
Ship Angles ...	5 5 0	do ...	3
Hoops and Strip ...	6 5 0	do ...	3
Charlier Shoe Bars ...	6 10 0	do ...	3
Cut Nails ...	7 5 0	do ...	7½
Heavy Rails, 56 lbs. ...	4 15 0	Works Port ...	nett
Light Rails, 14 lbs. ...	5 5 0	do ...	do

Terms: Cash against mate's receipt.
For definite quotation kindly submit specification.

RAND OUTPUT FOR SEPTEMBER.

THE gold crushings at Witwatersrand, according to a cable received by the Union Steamship Company, for the month of September were 202,562 ounces. This shows a decrease of 9867 ounces, as compared with the previous month's total, and an increase of 7797 ounces, as compared with the corresponding month of last year. The cable adds:—"The output would have been better had it not been for short month and other causes." The following table gives crushings from the beginning of 1891 to date:—

	1891	1892	1893	1894	1895	1896
January ..	Ozs. det.	Ozs. det.	Ozs.	Ozs.	Ozs.	Ozs.
February ..	2,205 15	8,840	103,374	149,814	177,453	118,178
March ..	2,079 2	8,849 9	93,242	151,870	169,295	167,018
April ..	52,949 1	93,244 11	110,474	165,372	184,945	173,942
May ..	55,871 10	95,562 6	122,053	169,745	186,323	174,518
June ..	54,673 1	99,426 6	116,911	169,773	194,581	195,008
July ..	56,868 1	101,252 2	122,907	168,162	200,941	191,640
August ..	54,924 10	110,279 1	126,149	167,953	193,453	203,473
September ..	59,070 4	107,312 3	136,069	174,977	203,373	212,478
October ..	72,792 8½	107,851 13	139,585	176,007	194,764	292,512
November ..	72,792 8½	117,197 6	138,599	173,378	195,512	—
December ..	72,792 8½	108,794 15	138,440	176,304	195,218	—
Total ..	80,312 11	170,748 17	146,337	182, 01	178,428	—
	729,337 8¼	1,110,950 9	1,478,473	2,024,189	2,217,636	1,671,177

THE ironworkers employed at the Ebbw Vale Iron and Steel Company's Works in the Ebbw Valley, who struck work a fortnight ago, owing to a wages dispute with the masters, resumed work yesterday, at an advance in wages of 10 per cent. The present agreement is terminable at three months' notice.

THE coal strike at the North Brancepeth Collieries, which has lasted over 13 weeks, and by which 12,000 hands were rendered idle, was settled by agreement at the Miners' Hall, Durham, on Thursday.

KANTON'S CONSOLIDATED INVESTMENT AND LAND COMPANY (LIMITED).—Warrants for the monthly dividend of 31. per share for the month of October have been posted.

Under these circumstances it is with regret I refer to the loss to the department of the services of Mr. Henry Andrew Gordon, its inspecting engineer; but, although the department is deprived of Mr. Gordon's services, I would fain to express a hope that the mining community will, for many years to come, have the advantage of his knowledge and practical experience in all questions appertaining to mining in the new sphere of action he has marked out for himself.

The regular gradation and association of the metals in relation to the geological structure became apparent when I published, in 1881, the geological map of the Pyrenees of Navarre, which was frankly acknowledged and reproduced a year later, after a most careful examination of the ground, by the present head of the geological survey of Spain. The inconvenience of the absolutely contrary course adopted by the present heads of the French survey is obvious, for the systematic classing of Cretaceous as Cambrian on notions of the "*a priori* impossible," leads either to the silent triumph of chaos or the inevitable denunciation of practices outside of science. Practical study becomes useless without wearisome polemics on the age of creation and the simian origin of man. I observe that in England it has been settled between physicists, biologists, and

mathematicians that the British popular geology attacked by Lord Kelvin was "killed" by him, and is now "as dead as the great auk." They forget that the geology in question arose from a compact to abandon such discussions as he revived. Doubtless, for this reason, no uniformitarian geologist except myself has replied to his attacks, and his supporters have hence assured French geologists that the absurdity of the views of Lyell, Ramsay, Jukes, and Page has been mathematically demonstrated. It is a pity that a representative of the geology that produced the British geological survey is hence supposed in France to be a *priori* necessarily in the wrong. Time is wasted in the demonstration of the contrary, which year after year the rocks supply to my critics, and which compels them to contradict year by year every imaginary fact which they have urged against my modest applications of the lessons of my teachers. It is not ignorance of dynamics, but experience in practical geology that inspires the work of the victims slain by Baron Kelvin, and buried by Huxley on a stage where their absence was conspicuous. Wherever real progress in practical geology and all its branches is being made, there uniformitarian geologists do the work, despising traps to involve them in discussions that can only exhibit the dexterity of their assailants in specialities that hide their total ignorance of the science they propose to reform.

All questions concerning mineral deposits, and the distribution of metals being vitiated by prevalent fallacies that are a *priori* deductions from sensational theories of the origin of mountain chains, it is useless to attempt their elucidation without first substituting some notions of what the rocks themselves teach. Miners familiar with Mr. Collins's excellent translation of Moissanet's work on the lodes of Cornwall will best understand my meaning. The mathematics of that work were the Jack-o'-Lantern that ruined the finest geological intellect in France. In that country I am to-day almost alone in defending his real (uniformitarian) achievements.

Standing on Jurassic fossiliferous rocks or granite in the French plains, the observer sees before him the lofty structure of the Pyrenees, composed of Cretaceous and Eocene beds piled on the top of those he stands on. He can measure between Tolosa and Bilbao more than 6000 feet of Lower Cretaceous, around Eaux Chaudes more than 3000 feet of Upper Cretaceous, and along the Spanish slopes some 2000 feet of Eocene. Yet the extreme summits of the Pyrenees are barely 11,000 feet above the plain. In no genuine section is any marked upheaval apparent. The difference of height is almost wholly due to a greater thickness, an insensible thickening in the vast broad zone of gradually rising ground, which mere optical foreshortening presents to his eyes as an abrupt ridge. The grasping of this fact suffices to explain and justify the conclusion of Dufrénoy that all such upheaval as is truly visible in the Pyrenees is due to the igneous rocks that interlard the chain to an extent that he and I have apparently alone observed, probably for the simple reason that he and I have alone expended the necessary patience and time. P. Lasson and Charpentier should, however, be mentioned as earlier and serious observers of the same. Magnan inaugurated the geology of deliberate contradiction, based on imaginary faults and hasty compilation.

Far from finding material for imaginary convulsions and upheavals, one is impelled by every detail of the composition and structure of the Pyrenees to consider the process now going on daily before our eyes in the vast ridges of coral limestone, broken blocks, volcanic ashes, and fossiliferous sand and mud which in the bed of the Pacific are preparing the mountain chains of futurity, and have completed the range of Japan. It is needless to discuss the mechanism of the return to an earlier equilibrium that will place the bed of the Pacific on a level with the present foot of the Pyrenees. Suess, an eloquent writer of the school of Magnan, pleads specially for continuous contraction of the earth's crust and consequent retreating of the ocean. Facts show that thousands of feet beneath the Pyrenean marine deposits and old land surface is rich in buried carboniferous plants. Oscillation, and no continuous change, is here, as throughout geology, the direct teaching of the rocks. Subscribers to the splendid work of Suess have vainly awaited the third volume, announced for 1889, and which, like a famous Romanesque lecture, will doubtless contain the overlooked essentials of a plausible compilation. Bimetallism, spiritualism, and the unseen universe, distract reformers of geology from completing the justification of their views. The end is nothing, and they do not wish it near.

The microscopic examination of innumerable outcrops of the igneous rocks of the Pyrenees, in conjunction with the invariable control by field work, has led me to the conclusion (published in *Comptes Rendus de l'Académie des Sciences*, January, 1894) that the granite, porphyry, and opelite are all products of one process. The laboratory examination of six microscopic slips by M. Michel Levy was, of course, insufficient to warrant any conclusion, and that of similar slips by Dr. J. Kuhn, at Bonn, confirmed my previously published examination of 60 outcrops on the spot. Only observers like Roth and Zirkel appear to understand that microscopic petrography is much worse than useless if divorced from field work. With the very generous assistance of M. Fouqué I have since 1880 examined sufficient material to warrant a conclusion. All the igneous rocks of the Pyrenees form a network precisely such as we should expect in a chain of volcanic islands growing up from the muddy bottom of the ocean. Clearly the granite represents the inner roots, the porphyry, the dyke, and the opelite the outer variations of one volcanic system to whose influence the metamorphism of large tracts of Cretaceous sediment into slate and of coral limestone into marble is owing in the Pyrenees, and to-day preparing in the Pacific. No trace of stronger or more rapid change than that in daily progress is discoverable in the fossil archipelago.

Imaginary diagrams of the folds and inversions of the Pyrenees are theoretical conclusions filled in between hastily recorded illusions, due mainly to perspective effects and the intersection of curved surfaces. The real folds are local, irregular, mainly synclinal, and amply compensated by intercalated igneous rocks. Attempts to classify and systematise such folds are based on reckless extension of isolated examples, and consequently destroy each other. The faults of Magnan are purely imaginary in fact, and their theoretical admissibility is disallowed by the view to which the stratigraphical, microscopical, and paleontological evidences independently lead.

As regards the last, obscurities remain to be solved which indicate an application suggested to me by long familiarity with the volcanic areas of the Mediterranean. The association of particular volcanic rocks with particular geological periods is now admittedly a worthless theory of the catastrophists. It would be rash to imagine that a particular mountain chain would, in the course of its growth, exhibit a complete succession of fossil life, as it may undoubtedly exhibit a complete series of igneous rocks. But I cannot doubt that its life history would exhibit features very different from those of the basin of Paris, and the instructive faunas which I have unearthed in many parts of the Pyrenees tend to introduce modifications of theory in the direction suggested.

I shall merely add that gold is only known to me in the Pyrenees as an accompaniment of the conglomerate of the base of the Miocene, which I have long shown to be of glacial origin, and which was described by Charles Martins as a glacial moraine in 1865, before I had proved its now admitted Miocene age. The subject was subsequently confused by Dr. Garrigou and elucidated by Porreeh in 1870. The traces of this early glacial period are among the most general and most striking phenomena of the entire chain. The gold, worked recently by gipsies and formerly by Romans, recalls similar occurrences elsewhere.—Yours faithfully,

P. W. STUART-MENTEATH, A.R.S.M.

St. Jean de Luz, October 12.

P.S.—"Certainty" has been printed for continuity in line 29 of my letter on page 1229.

COOLGARDIE WATER QUESTION.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—As the question of the probable supply of water for battery purposes obtainable from the reefs on the West Australian gold fields appears still to agitate the minds of investors, and is largely used by interested persons desirous of diverting investments from West Australian mines to other sources, I beg to solicit through your valuable medium the co-operation of those companies that are directly interested in Western Australia in dispelling these doubts.

It is abundantly evident that water has been struck all over the Coolgardie gold fields at varying depths, and found in varying quantities. A return of such finds of water would, if properly chartered up on a plan of the gold fields and carefully catalogued, astonish the public, and go far to completely allay the unnecessary and groundless fears entertained on the question.

I would be very pleased to receive from the directors of the companies information as to the depth at which water has been struck on their properties, and also a statement as to the supply at present, and what may reasonably be expected in the near future. I would then place such information on a plan which when published would buy no doubt prove of the very greatest value to the mining industry. I have no doubt whatever that this plan would be highly valuable to the various directors, and reassuring to the thousands of investors who have placed their money in the mines of West Australia.

It is, perhaps, unnecessary for me to add that I would carry out this work gratuitously.—Yours faithfully,

C. C. HOGG.

34 and 36, Gresham Street, E.C., October 9.

THE RHODESIA RISING.

TO THE EDITOR OF "THE MINING JOURNAL."

DEAR SIR,—I think you may be interested to know that my partner (Mr. Robert Williams) cabled from Durban on October 14 as follows:—

"Am in communication with C. J. Rhodes. . . the war is practically at an end. I leave with engineers for Umtali. . . Stewart (our Bulawayo manager) returns to Bulawayo immediately with other engineers. Warwick (engineer) is examining Gwanda district. Whitton (engineer) may return from London to Bulawayo at once. Inform all companies interested."

We think the above may be of interest to the public, as showing that business is beginning to resume its normal position at Bulawayo.—Yours faithfully,

ROBERT WILLIAMS AND CO.

London, October 15.

PROVINCIAL SHARE MARKETS.

THE CORNISH MINE SHARE MARKET.

MR. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes October 15:—The Mining Market has hardened a little on the improved prospects of tin, with the probability of higher prices and increased demand on good buying orders. Quotations:—Basset United (Limited), 16s. to 17s. 6d.; ditto (5s. paid), 4s. 6d. to 5s.; Blue Hills, 4s. to 5s.; Carn Brea United (Limited), 1s. 6d. to 2s.; Devon Consols, 17s. to 18s. 6d.; Dolcoath (Limited), 16s. to 17s. 6d.; ditto (7s. 6d. paid), 6s. to 6s. 6d.; East Pool, 16s. to 17s. 6d.; Killifreth (Limited), 1s. 6d. to 2s.; Levant, 2s. to 2½; West Kitty, 2 to 2½; Wheal Grenville, 4½ to 4¾; Wheal Kitty, 4s. to 5s.

Messrs. ABBOTT and WICKETT, Stock and Share Brokers and Mining Share Dealers, Redruth, write under date of October 15:—There is absolutely nothing doing in shares at present, but with the turn in tin, which seems to have come, it is probable that shares will soon attract attention. Quotations herewith, which are mostly nominal:—Blue Hills, 1s. to 2s.; Basset Mines (fully paid), ½ to ¾; ditto (5s. paid), 4s. to 5s.; Dolcoath (fully paid), 16s. to 17s.; ditto (7s. 6d. paid), 6s. to 6s. 6d.; East Pool, ½ to 1; Killifreth, ½ to ¾; Polbarro, ½ to ¾; West Kitty, 1½ to 2½; Wheal Grenville, 4 to 5; Wheal Kitty, ½ to ¾; Wheal Metal (3s. paid), 3s. 6d. to 4s.

MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write October 15 (12 noon):—The past week furnishes a long string of declines in values throughout most, if not all, the sections of the market. Whilst purely miscellaneous investments show somewhat irregular alterations, the only real contradiction to the general rule of lower prices is supplied by Americans, and with them, in less degree, Canadian issues. The improvement in Yankees and Canadians has occurred in recent days, and as earlier some declines had been marked, the smart advance had something to "wipe off," hence the advances on the week are not abnormal. The "bell wethers" of this market continue to be Milwaukee and Louisville, and rapid fluctuations have been marked heretofore almost daily, with result for week very decent advance in each. As regards home rails prices have fallen away all round on balance, though some very fair figures have obtained at times for some issues. The influence of gold "going out," and the generally accepted opinion towards an advance of the Bank's "official minimum," have contributed to the movement to lower prices. The only spot where these influences have been over-ruled has been in Metropolitan Districts, but as they are just now "rolling a log" of their own, the exception is not to be wondered at. On the week they show a rise of ½ of not much import beyond their isolated position in course of prices. The record of declines will be seen below. American Rails Ordinary and Second Preference quote lower (-) from ½ up to ¾, and reverting to Americans, the only adverse change therein, which, after allowing for them being now x.d., are ½ lower than a week ago. Amidst the turmoil of International politics now going on, and the movements in money, it is not surprising that Consols (though not now the distinct "pulse" of the market, as they once were) are down 9½ on the week. Apropos of the battle of metallic standards, it seems a pity that Consols should have come down into the arena of speculation. It seems to us that this change almost reduces Consols to the position of a "commodity," a position which up to recently they stood decidedly above. Colonial stocks, &c., Home Corporation stocks and debentures, are all lower again where altered, and where not altered remaining nominal; figures would

doubtless require a good deal of revision if business was attempted on the unchanged quotations. Foreigners have stood remarkably immobile lately, but this week mobility has asserted itself, and the result is downwards, but still the only cases of decline really European, especially those which we may call the "Mid-European" class, are practically unaltered, notwithstanding the turmoil of miscellaneous classes, banks, where changed, are lower, as also are British and Foreign Marine. In coal and iron shares there is nothing of consequence to note, nor, indeed, beyond pointing to the figures given below, is there in the further sections of the market. An exception, however, may be made in the case of Coal's ordinary and Bovril, which from exceptional causes are very distinctly higher on the week. Yesterday is another exception—viz., rise of 10 in Guinness.

ENGLISH RAILS.—Higher: Districts, ½. Lower: Caledonian, 1; ditto, deferred, 1; Great Eastern, ½; York Deferred, 1½; Great Western, 2; Lancashire and Yorkshire, 2½; Brighton A, 2½; Chatham, 5-16; London and North Western, 2; Saras, ½; Midland, 1½; North British, ½; Berwick, 1½; Dover A, 2.

CANADIANS AND AMERICANS.—Higher: Atchafalaya ordinary, ½; ditto Preference, 1½ to 2; Canadian Pacific, ½; Trunk Ordinary, ½; ditto Guaranteed, ½; First Preference, 1½; Second Preference, ½; Third Preference, ½; Central Pacific, ½; Milwaukee, 1½ to 1½; Denver, ½ to ½; ditto Preference, ½; Louisville, 1½; Missouri, ½; Erie, ½; Ontario, ½; Norfolk Preference, ½; Reading, 2; Union Pacific, 1½. Lower: Mexican Rail, ½ to ½; ditto Second Preference, ½; New York Central, ½.

CONSOLS.—Lower: Two and Three-Quarter per Cent., 9-16.

COLONIAL STOCKS, &c.—Lower: Canada Registered, 1; N. South Wales Inscribed, 1; New Zealand Inscribed, 2; Victoria L. Inscribed, ½.

CORPORATION STOCKS AND DEBENTURES.—Lower: Birmingham Three and a Half per Cent., 1; Blackburn Three and a Half per Cent., 2; Manchester Four per Cent., ½; Oldham Four per Cent., 1; Wigan Three per Cent., 1.

FOREIGNERS.—Lower: Argentine Six per Cent., 2; ditto Five per Cent., 3; Brazilian Four and a Half per Cent., 5; ditto Four per Cent., 3; Italian Renter, 1; Mexican Six per Cent., 1; Portuguese Three per Cent., 1; Turks D. ½.

BANKS.—Lower: Imperial Ottoman, ½; District, ½; Mercantile of Lancashire, 1-16; National Provincial, ½; Union of Manchester, ½.

INSURANCE.—Higher: British and Foreign Marine, ½. Lower: Liverpool, London, and Globe, ½; London and Lancashire, ½; Manchester, 3 16; Palatine, ½; Royal, ½.

COAL, IRON, &c.—Higher: Dorman Long, 1-16 to ½; Parkgate, ½. Lower: B. I. & Co. Vaughan Preference, ½.

TELEGRAPHS AND TELEPHONES.—Lower: Anglo-American, 1; ditto Deferred, ½; ditto Preferred, ½; West and Brazilian, ½.

BREWERS.—Higher: Farnham, ½; Guinness, 10; Parker, ½. Lower: All-opp's, 4; Bent's, ½; Chester's, ½; Massey's, ½.

MISCELLANEOUS.—Higher: Blackpool Towers, 6d.; Budegar, ½; Bovril, 1 7-16; Bryant and May, ½ to ½; J. and P. Coats, ½; Crosses and Winkworth, ½; Cunard Steam, ½; Fowler Brothers, ½; Henry's, 3-16; Kellner Pattington, 1-16; Pacific Steam, ½; Sea Light A, 1. Lower: Ashton Debentures, ½; Bowman Thompson, ½; Eastman, ½ to ½; Hetheringtons, ½; Howard and Ballough, ½; Lister, ½; Salt Union, 3-16; Spiers and Pond, ½; Ship Canal Ordinary, 1-16; Maxx Trams, 1s.

LATER (4 P.M.).—The Bank rate was not altered to-day, but the opinion is pretty well held that it is only in abeyance, hence the "no change" had little effect on the markets. Home rails are a little better as a rule on balance for day, and Yankees not but points not quite maintained as a rule.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (October 15), writes:—During the past week there has been little business doing, owing partly to the upward tendency in the money market and the unsettled state of foreign politics. Trade reports continue good, and there has been some recovery from the lowest prices reached during sales to close accounts. The fortnightly settlement has been satisfactorily concluded, and transactions are now entered for October 29.

In shares of coal, iron, and steel companies, prices are steady. Kent coal are at 21s. 6d.; Marbella Iron, 29s.; Niddrie, 39s. 6d.; and Steel Company of Scotland, 5½.

In shares of copper concerns there has been little business doing. Arizona and Tinto are easier. Tharsis steady.

In shares of gold and silver mines there has been a little more business doing. Until rates to close weak accounts come to an end, and the political atmosphere is cleared up, there do not appear to be great hopes of a rise. The Rand output for September was very satisfactory, and it does not seem likely that the native workers will strike against the reduced wages. Indian mines are steady in anticipation of a good interim dividend on Mysore. Consolidated Gold Fields declined to 10½ on dividend rumour, but on the announcement of 15s. per share have recovered to 11½. East Rand touched 5 7-16 and Randfontein 46 9-16, but are both now better. African Recovery have attracted less attention between 38s. and 43s. African Estates are at 27s. 6d.; Afrikaner, 30s.; Broken Hill, 48s. 9d.; Blue Spur, 10s.; Brownhill Proprietary, 5s.; Balkis Ltd., 4s. 3d.; Cassel, 19s.; Croydon Consols, 9s. 3d.; Cripple Creek Gold Fields, 9s. 9d.; Consolidated Merichon, 7s. 6d.; Caratol, 6s.; East Hauraki, 2s. 6d.; Eastleigh, 16s.; Emma, 1s. 6d.; East Sheba Reef, 2s.; Golden Sceptre, 1s. 6d.; Gold Estates of Australia, 37s. 6d.; Ginsberg, 43s.; Golden River Preference, 10s.; Hauraki Associated, 4s.; Hall Miner, 33s. 9d.; Hainault, 36s.; Hannay Star, 26s. 3d.; Kathleen, 3s. 3d.; Kabononga, 1s. 3d.; Lady Bow, 4s. 6d.; Langlaagte Block B, 29s.; London and Globe Finance, 93s. 9d.; Mount Charlotte, 20s.; Mami Kesi, 7s. 6d.; Merichon Gold and Diamond, 2s.; North Croydon, 3s. 3d.; North Boulder, 2s.; Orion, 18s. 9d.; Orana Development, 7s. 6d.; Pearl Central, 23s. 9d.; Pharras G.M. Fields, 13s. 9d.; Piddington, 30s.; P.P.P., 23s.; Phoenix, 1s. 6d.; Rhodesia, 25s.; Robinson Randfontein, 22s. 6d.; Royal Niger, 33s.; Sheba, 37s. 9d.; Sheba Queen, 6s.; South African Mining Syndicate, 2s.; Town Properties W.A., 21s. 3d.; United Rhodesia, 13s.; Umbell, 6s.; United Gold Fields of Manica, 10s. 9d.; Violet, 20s.; West Australian Concessions, 20s. 3d.; and Wealth of Nations 20s. 6d.

In shares of miscellaneous companies there is little alteration to notice. In oil companies Broxburn are at 9½, Hermand 1s. 3d., Pumpherton 6, and Young's 27s. Field's Candle Six per Cent. Preference are at 11½. Nobel's declined to 17½, but are now 18½.

EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 6, Hanover-street, Edinburgh, report as follows under date of October 15:—Home railways recovered to-day when it was known that there was no change in the Bank rate. Since last week's report Caledonian Deferred have gone from 56½ to 56 5-16, British from 43½ to 43 7-16. Insurance shares have been somewhat weaker, North British and Mercantile have declined from 38½ to 37½, Northern from 78½ to 78. Globes and Royal are also lower, Commercial Union have improved from 33½ to 34½. Scottish Union A from 90s. to 90s. 6d. Clydesdale Banks are slightly lower. Royal has receded from 235 to 233. Union has gone on from 22½ to 22½. Arncliffe Coal shares have fallen from 18½ to 18. Cowdenbeath Coal have risen from 17½ to 17½. Fife Coal from 20 to 20½. Arizona Copper shares have changed from 60s. 9d. to 60s. 6d. Rio Tinto from 24½ to 24. Tharsis from 115s. to 116s. Young's Paraffin from 27s. to 27s. 3d. J. and P. Coats have fluctuated rapidly, particularly after the dividend was announced. The last price to-day was 61½, as compared with 57½ a week ago. Scottish Wharf shares have gone down from 62 to 60.

(FROM OUR OWN CORRESPONDENT.)

THE INSTITUTION OF MINING AND METALLURGY, SESSION 1896-97.—The first ordinary meeting of the sixth session will be held on the evening of Wednesday next, in the Lecture Theatre of the Geological Museum, Jermyn-street, S.W., at eight o'clock, when the following paper will be read and discussed:—“The ‘Direct’ Method Considered as the Future Metallurgical Treatment of Copper Ores, Argentiferous or otherwise,” by Mr. Christopher James, M.Inst.M.M.

INTERVIEW WITH SIR JAMES GRANT.

"In the districts I have mentioned the main part of the capital

"SECRETARY," care of STRAIGHT CO., 30, Cornhill, London.

NEWS FROM WEST AUSTRALIA.

CUTTINGS FROM THE LOCAL NEWSPAPERS.

(From the Western Australian Mining Journal.)

MR. G. H. LOVETT, who recently bought the Prinsep Park Estate, of 24,000 acres, near Banbury, is in receipt of a report from his mining engineer, who is now engaged in locating the lodes and reefs running through this property, stating that he has found two large reefs or lodes. One is composed of a hard blue or grey quartz, which varied as it was traversed for over 2½ miles, sometimes being of a soft sugary kind, and at others nearly white, with ironstone intermixed. The walls of this reef, which is from 1 to 2 chains wide, are of slate of a dioritic nature. The second reef runs parallel with the first—i.e., north and south. It is composed of a soft sugary quartz, with ironstone, some of which is similar to the Dandalup lode. There is also an ironstone ridge which appears to be a lode between the position of these reefs (near the portion of the estate known as Henty's station) and Dandalup. The mining engineer is very much impressed with the ironstone reef (the second mentioned). Prospecting is being carried on with a view to proving the auriferous portions of the estate.

A remarkable series of rich developments have occurred on the Hannan's Proprietary Development Company mines. A lode showing rich gold has been struck in the Orotava and the Queen of the West Mines, while in several shafts the water is increasing rapidly, the Golden Pike supply being so big that a lot of money has been offered for the right to the water if granted for six months. The company is erecting six crushing plants, however, and will want the water.

Wonderful reports are coming in from the Gibraltar district, which augur well for the future of that locality and Coolgardie as well. At the 210 feet level the De Beers Mine has over 30 feet of lodestuff, which, by mill tests, has been found to average 2 ounces, and it is thought to be merely a matter of working for the Easter Gift and adjoining mines to strike the same stuff. In the crosscut at the 70 feet level in the East Gift there is a large mass which, we understand, will average 25 dwts., and when depth is attained there is every reasonable hope that the ore will improve as it has done in the De Beers.

The Lady Shenton's latest crushing gave a return of 854 ounces from 237 tons, and the tailings assay 37 dwts. to the ton.

A soft change is coming in at the 170 feet level in the Perseverance Mine at Kalgoorlie, and it is probable that the cross reef met with in sinking will be cut.

The lode in the East Boulder is opening out so well that a prospecting shaft is being started near the south boundary. At a depth of 50 feet in the north shaft the stone shows coarse gold all through.

Arrangements are being made to convey water to the Boulder battery from the Boulder Junction reefs, where an abundant supply of water exists, by means of pipes.

Stone said to be the richest yet seen in the mine is being raised from the 80 feet level in the Killaloe Reward Mine, on the Norseman. The reef is over 2 feet thick, and is simply studded with gold. Besides this, there is a big formation about 40 feet wide, which is more or less gold-bearing.

(From the Western Australian Gold Fields Courier.)

The No. 4 reef struck at a depth of 120 feet in Cassidy's Hill is very rich. It is an east and west quartz vein about 12 to 14 inches in width, and in places is full of gold. Some of the samples broken contained nearly an ounce of gold in a piece the size of a duck's egg. The general run of the stone is, of course, not by any means so rich as this, but the rich patches are of frequent occurrence. The most showy stone is picked out as broken, and a case of astonishingly rich stuff has been sent to London. It is intended to continue the crosscut on the reef right to the eastern boundary of the claim. The big ironstone formation on the west side of the mine is improving in value as it is opened up, and a drive is being carried along the course of the lode. It is a big lode, and so promising that it is intended to sink on it to a depth of 150 feet at once.

A Mount Magnet correspondent writes:—Mr. Alexander, M.L.C., has arrived here, and was driven out to the Welcome. He expressed satisfaction at the display of gold. There is now 27 feet of sinking, and from the top to the bottom and under foot the shoots of gold are distinctly visible from the surface as far as the eye can reach, making a golden seam several inches wide set in a dead white friable quartz. Up to date 2000 ounces of gold have been dilled, and quite another thousand are ready for the dolly pot. Independently of this shoot of remarkably rich stone there is a very good battery reef over 10 feet wide, while two separate reefs traverse the entire length of the lease. Mr. Bishop offered £35,000, which was declined. The owners' figure is reported to be some thousands more, and an interest. In the event of the buyers not coming to terms quickly, the prospectors propose to erect a battery of their own. The adjoining lease, the Golden Giant, was sold to Mr. Bishop last week. The price is reported to be £7000. Captain Anthony has paid a deposit on the Golden Crown, where extremely rich gold was struck last week. Captain Anthony deemed it advisable, on account of the value of the stone, to close up the shaft, and in the meantime work elsewhere on the reef.

Particulars are published of the Hannan's Gold Mining, Aerial Tramway, Sluicing, and Transport Company, which it is intended to shortly place on the market with a capital of £250,000 or £300,000. It is proposed to construct an aerial tram line, 8 miles in length, from the Kalgoorlie railway station to a spot on the Hannan's Lake, where a water right of 20 acres has already been obtained. This line will pass right along the Hannan's auriferous belt, and the object is to convey ores from the different mines to a battery to be erected at the lake. The battery will be of the very latest kind, and provided with cyanide and sluicing works, the whole being capable of treating 7000 tons of ore per week. In addition to the ores from the mine, it is intended to treat the enormous patches of worked alluvial, which are believed to contain a large percentage of gold. It is also proposed to acquire and develop mining properties on the route of the tram line.

Some assays have just been made of stone taken from the Duke of York Mine, Coolgardie. From one shaft a ton of stone was taken from the surface down to the water level (30 feet). The assay, made at the Central Assay Office, gave a return of 6 ounces 8 dwts. 128 grains. Another assay from stuff from the three shafts, made by Messrs. Horwood and James, yielded at the rate of 8 ounces to the ton. The reef from which the stone was taken varies from 1½ feet to 2½ feet wide. The Ikey Mo reef runs through this property, but so far nothing has been done in the way of developing it. The crushings from the Ikey Mo have been 2½ ounces and 3 ounces.

The Golden Age Mine at Menzies has completed a crushing of 55 tons at the Lady Shenton battery, reports Mr. Hume Black, managing director. The gold return was 6 ounces 7 dwts. 18 grains per ton, and the tailings assay 1 ounce 12 dwts. 20 grains.

The Mount Morgan blocks, 18 in. all, near Widgeemoolah, have just been jumped. Great excitement prevails in the district over the matter.

GOLD MINING IN ONTARIO.

(FROM OUR OWN CORRESPONDENT.)

ABOUT 45 miles from Rat Portage is the Regina Mine, owned by an English company. There are 75 men at work with a 10 stamp mill. It is said that this property was purchased for \$30,000. This mine is at the contact of the granite with the Huronian rock; there are several good veins, the widest being about 8 feet. A considerable amount of development work has been done, and one shaft has been sunk 160 feet. A rich chute in the vein shows as high as \$150 and \$160 per ton, but this is above the average. The ore is free milling, the production being about \$2000 to \$3000 per week. The property is being vigorously developed, and the prospects are that it will prove a splendid paying mine.

Lake Harold Mine.—This mine is at present being operated by a 5 stamp mill. Considerable development work has been done, 75 feet being gained in one place and a tunnel 124 feet driven in another. In crushing 300 tons about \$3000 was obtained as free gold, while \$3000 remained in about 15 tons of concentrate. A shaft has been sunk in one of the veins to the depth of 50 feet, and other veins are being developed by drifting into the hill instead of sinking.

Saw Bill Lake Gold Mine.—This is a very promising property, and was floated on the Canadian market in April of the present year. The capital is \$100,000, divided into 100,000 shares of \$1 each. The directors are all gentlemen of undoubted business ability, the local managing director being Mr. F. S. Wiley, who is also manager of the Lake Harold Mine. The mine is situated on Saw Bill Lake, an arm of the Seine River, in Rainy Lake district. The formation in which the deposits occur consist chiefly of altered granite, the rock being of a greenish colour. The veins carry, besides gold, iron and copper pyrites, galena, and zinc blende. A true fissure vein in granite has been found, in which a shaft has been sunk to about 90 feet, the vein at that point being 6 feet; the quartz contained free gold. It is the intention of the company to sink the shaft 200 feet, and if the exploration justifies, a stamp mill will be erected. The latest report from this mine says that the mine is looking well and yielding quartz in which gold is easily found. The shares of this company are now quoted at \$2.

On cleaning out the battery at the reduction works of the Mikado Mine in this district several nuggets of gold were found, one of which was over 2 ounces, and valued at \$40. The whole of the nuggets have been forwarded to England.

The Empress Gold Mining Company of Ontario are applying for supplementary letters patent to increase the capital stock from \$100,000 to \$1,000,000.

A company is being formed in Toronto, which will be called the Mackenzie Lake of the Woods Gold Mining Company (Limited), capital \$500,000.

A charter has been granted to the Seine Manitou Gold Mining Company (Limited), capital \$100,000.

Mining men and others in a position to know predict a "boom" for Ontario shortly.

FOR SALE.

* Prepaid Advertisements are inserted in this column at the rate of 8d. per line with a minimum charge of 4s.

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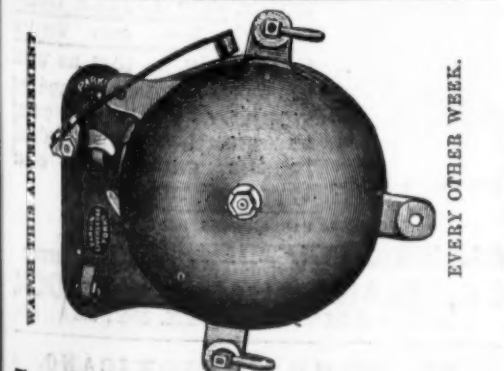
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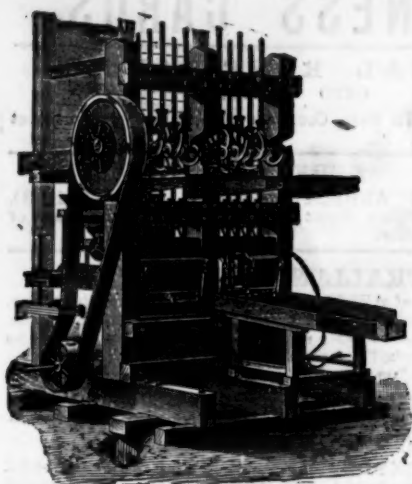
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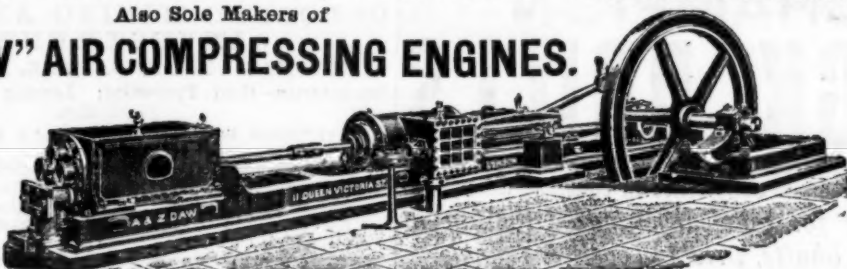
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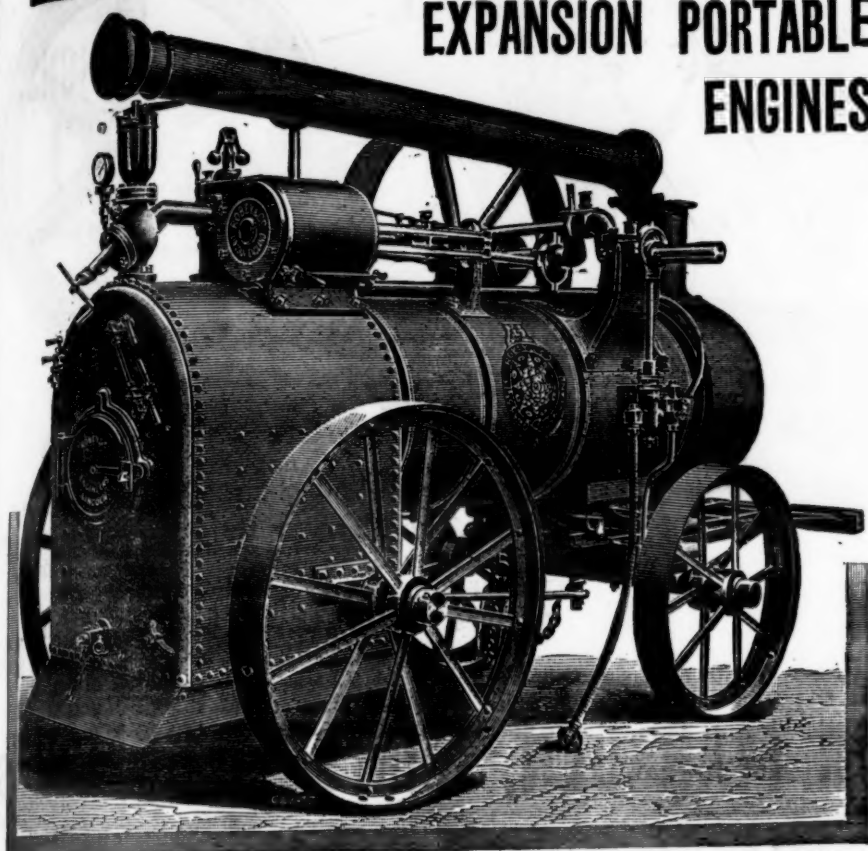
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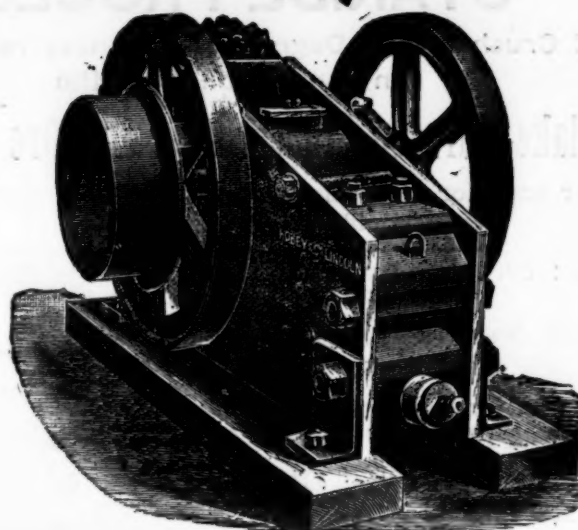
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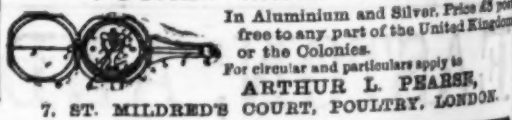
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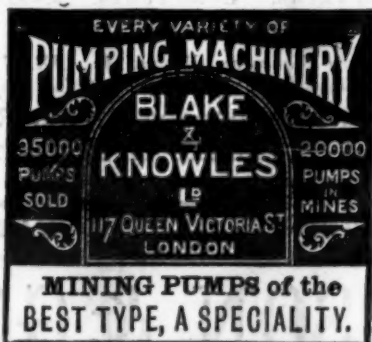
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